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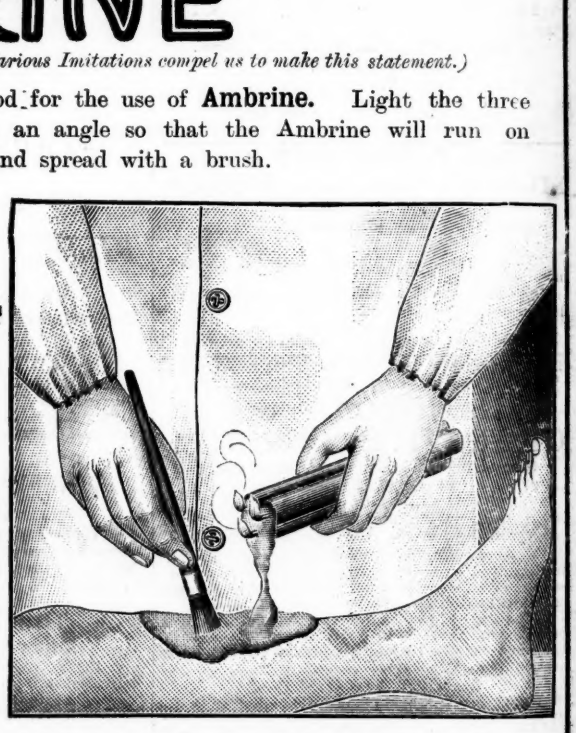

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THE EPIDEMIOLOGY OF INFLUENZA.*

BY

M. GREENWOOD, CAPTAIN R.A.M.C.(T.F.),

LISTER INSTITUTE AND MINISTRY OF MUNITIONS.

IT is a fortunate circumstance that, in addition to the able monograph of Leichtenstern,[1] we have historical contributions to the study of influenza from the pens of such epidemiologists as Hirsch, Haeser, and Creighton. These authors, from concordant testimony extending over nearly seven hundred years, established the following propositions relative to influenza observed up to the modern statistical period.

1. Primary influenza is a uniform disease. In the emphatic words of Hirsch, "it has at all times and in all places borne a stamp of uniformity in its configuration and in its course such as almost no other infective disease has."

2. Primary influenza is independent of both climatic and meteorological conditions. Epidemics have occurred in literally every quarter of the globe, and have commenced at every period of the year, with high or low temperatures, steady or changeable weather, much or little atmospheric moisture.

Dissecting the notion of uniformity, we remark that primary epidemics have been regularly characterized by (*a*) a tendency to become pandemic; (*b*) a fatality which is far slighter than the severity of the symptoms would lead us to expect—a feature shared with dengue, which disease has often been confused with influenza, although now known to be entirely distinct from it; (*c*) a special incidence upon persons in the prime of life. The above described features are rarely missed in the historical accounts.

In contrast to the above, we find three questions which were discordantly answered.

I. The first was that of periodicity. Hirsch's denial of any periodicity sufficiently distinct to be revealed by a mere cursory examination of the records must be endorsed; but it is proper to remark that periodicity in the strict sense of the term can only be disclosed by a somewhat elaborate mathematical investigation carried out upon long series of numerical data; neither the technical method nor suitable statistics were at the disposal of our predecessors.

II. The second vexed question was whether influenza were a wind-borne infection. Hirsch remarked that the proven fact of pandemics progressing against the direction of prevailing winds was unfavourable to the hypothesis, and no recent evidence is opposed to his conclusion.

III. The last disputed point, namely, the contagiousness of influenza, is now decided, and in the opposite sense to that of Hirsch, who concluded his discussion of the matter with the words, "We shall find it hard to discover any reason for counting influenza among the contagious or communicable diseases."

The modern period opens with the pandemic of 1889–90, upon which Leichtenstern and Parsons[2] are excellent authorities.

I will very briefly refer to their non-numerical results, since I wish to direct attention more particularly to some statistical points. Parsons was able to bring together concordant testimonies as to the ordinary mode of development of the epidemic. His most significant result was to show that epidemic influenza does not really originate in a mass attack. A mass attack, indeed, forms an invariable link in the chain of events, but scattered individual cases are antecedent. This observation removed the most formidable objection to a belief that influenza is contagious, and it is easy to understand why we discover no confirmation in historical records. In such epidemic diseases as plague the preceding sporadic cases are recorded because their high fatality leads to inclusion in bills of mortality; but in consequence of the very low fatality of primary epidemic influenza early mortality records are wanting. The mass phenomenon strikes the imagination of the recorder and an illusion of suddenness and simultaneity is produced. Further evidence of contagion is afforded by the following observations:

1. The almost complete immunity of such segregated groups as the Dogger fishermen and lighthouse keepers during 1889–90.

2. The relative immunity of prisoners and other inmates of institutions, particularly in comparison with the staff.

3. The tendency of the epidemic to begin in crowded centres, or, in any particular locality, to be dated from the holding of a public meeting.

No single one of these observations is logically decisive, but, like all epidemiological questions, this must be decided upon broad issues of greater or less probability. The general body of evidence creates a presumption in favour of the theory of contagion. Some assertions which, if true, would have demonstrated the inadequacy of the hypothesis have been disproved; such are the alleged simultaneous occurrence of a very large number of cases without previous exposure to possible sources of infection, or the suggestion that influenza extends uniformly in space with velocity greater than that of human transport.

It would be unscientific to discard the hypothesis of direct personal infection because particular instances, respecting which all the facts cannot be known, lend it no support.†

I now pass to the numerical side of the epidemiology.

The fundamental characteristics of a primary epidemic of influenza—and by primary I understand an epidemic occurring in any locality after a succession of years nearly free from the disease—are a very high attack rate and an approximately symmetrical evolution in time. The number of cases increases rapidly to a maximum and then decreases to the endemic level at a rate but little slower than that of its increase; the graph of the epidemic is an almost symmetrical curve; the fatality is low, rarely more than 1 per cent. of cases. These extremely important features of rapid and symmetrical evolution can only be properly displayed when the number of cases, not merely deaths, has been recorded.

Diagram 1 exhibits such data of the 1889–90 epidemic, and is condensed from Leichtenstern's record of daily notifications in Munich. For the London epidemic we have only deaths, so that the symmetry is obscured, the tail of the curve lengthening out. Diagram 2 gives the influenza mortality in London for January, 1890, the primary epidemic, also the course of the succeeding epidemics in London, which culminated in the early summer of 1891 and the winter of 1891–92.

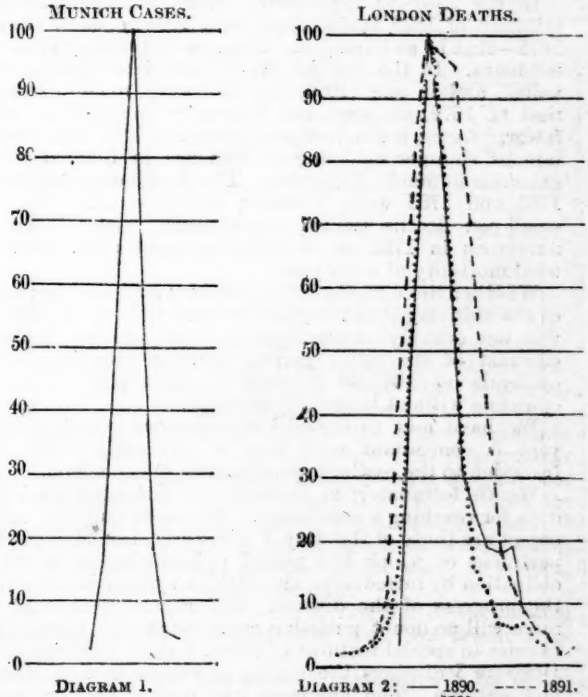

DIAGRAM 1.

DIAGRAM 2: —— 1890. ---- 1891. ..... 1892.

*Contribution to the discussion at the Royal Society of Medicine, November 13th, 1918.

†The most famous instance is the outbreak of influenza in January, 1890, in the remote and isolated parish of Bradwell-on-Sea, in Essex. The facts, as set out by the medical officer of health, will be found in Parsons's report (C. 6387, pp. 74–75), and were emphasized by my co-reporter to the Section of Hygiene and Preventive Medicine at the International Congress of Medicine, London, 1913 (see Sticker, Ueber die Bedingungen von den die Entwickelung, etc., der Epidemien abhängen (Sect. 18, Int. Cong. Med.).

In contradistinction to a primary epidemic, a secondary epidemic affects a relatively small proportion of the population, is slower in reaching its maximum, and thereafter declines slowly and irregularly—more slowly than it increases; its distribution in time is asymmetrical, and there is less concentration around the maximum. Further, a secondary epidemic is characterized by a vastly higher fatality than a primary epidemic. The influenza period of 1889–94 gave us four epidemics: the primary symmetrical epidemic of December, 1889, to February, 1890; the secondary asymmetrical and much more fatal epidemi of the spring and summer of 1891; a third epidemic in the autumn and winter of 1891–2; and a fourth from November, 1893, to January, 1894. The third epidemic showed some tendency to revert to the primary type in respect of symmetry (see Diagram 2), while the fatality rate partook of the character of the secondary epidemic.* Creighton writes:

> That which chiefly distinguishes the influenza of the end of the nineteenth century from all other invasions of the disease is the revival of the epidemic in three successive seasons, the first recurrence having been more fatal than the original outbreak, and the second recurrence more fatal (in London at least) than the first. The closest scrutiny of the old records, including the series of weekly bills of mortality issued by the parish clerks of London for nearly two hundred years, discovers no such recurrences of influenza on the great scale in successive seasons.[3]

He would be a bold man who challenged the accuracy of Creighton upon a point of historical scholarship, and I have only to suggest that there are faint indications of increased mortality in years following primary epidemics of influenza prior to the nineteenth century. Thus 1675 was a year of primary epidemic influenza, fully described in Sydenham's *Observationes Medicae*.†

The nature of the succeeding constitutions is not clear, but the deaths "within the bills" for 1676 were considerably more numerous than in 1675, although small-pox, fever, and "griping of the guts" were noticeably less fatal.

In the *Epistola Responsoria* (1, 54) the epidemic constitution of 1679 is described as a recurrence of that of 1675—that is, as having the features of primary epidemic influenza. In the five following years intermittents prevailed, and in one (1684) the mortality much exceeded that of 1679, although the deaths from small-pox were fewer. Again, a hundred years later, in 1782, there was a famous summer epidemic of influenza in London which gave rise to much discussion. The London mortalities in 1782 and 1783 were, however, almost equal, when the small-pox deaths (which were nearly three times as numerous in 1783 as in 1782) are subtracted from the total mortality of each year.

Whether these vague indications are sufficient to permit of our thinking that the epidemic constitution of 1889–94 was not entirely unprecedented is disputable. But the contrast of the latter period with the preceding single epidemic of 1847–48 is striking; that was a primary epidemic without important sequelae.

We have now to consider whether our experience this year is concordant with that of the early nineties, a reversion to the earlier type, or a new phenomenon.

We are fortunately in possession of excellent statistical data for reaching a conclusion. The most suitable for my object are those of the Royal Air Force, the Medical Department of which has placed epidemiologists under an obligation by introducing an efficient system of recording the progress of the disease. The representatives of the force will no doubt publish a complete study; I have only to refer to special features to which I have paid attention. Diagram 3 displays the course of events in the summer and autumn. The abscissae are weeks; the ordinates, which are expressed in terms of the number of cases recorded in the worst week, show the incidence upon all personnel at home. The full line is the Munich epidemic of 1889–90, expressed in the same unit and superimposed upon the other graph, the worst week of the earlier epidemic being made to correspond with the worst week of the late outbreak.

The general similarity of the two is unmistakable. When we add that the fatalities were equally low and the attack rates equally high, we shall have no doubt at all that we are dealing with congruent epidemiological events.

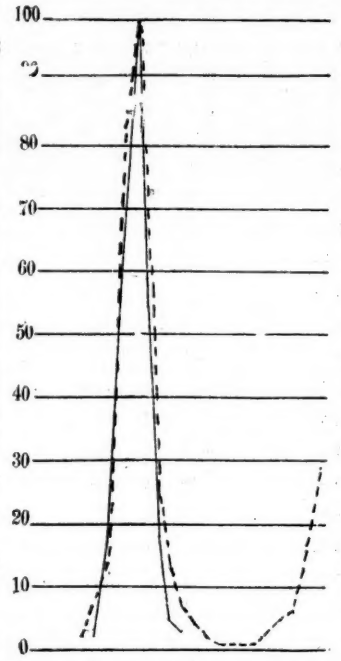

DIAGRAM 3: —— Munich. ---- R.A.F.

For a testimony of the course of events in a civilian population, I submit data compiled for national munition factories situated in different parts of the country. Here we had to adopt a different statistical basis which is shown in the table. Using this new unit, the course of the epidemic is seen to be similar to that displayed in the R.A.F. I illustrate it in Diagram 4, which takes the record of the particular factory used down to the end of October. As a matter of interest, I may add that when the percentages plotted are reduced to terms of real hours, one finds that the summer epidemic cost about thirty-six hours a head of the whole munition-making population, so that the loss of output to the community was equivalent to that of about four working days.

I believe that the evidence just presented establishes a substantial identity between the summer outbreak of 1918 and the primary wave of 1889–90. We do not need to appeal to any new factor arising out of the war to account for it.

I next consider the secondary epidemic which we are now experiencing. Evidently our knowledge of the events in 1891 would lead us to feel no surprise at the emergence of a secondary wave, although we could not be sure that the precedent of 1847 would not be followed.‡ Judging from deaths alone, the interval between the decline of the 1889–90 primary and the emergence of the 1891 secondary was quite fourteen months in London, but the third epidemic was separated from the second by a much shorter interval (in London about five months),§ in parts of the country little if any longer than has elapsed this year.

Confining myself to incidence for a moment, I take up again the Air Force records (Diagram 3). The right hand end of the diagram is plotted in terms of the unit used before —namely, the worst week of the summer epidemic taken as 100—so the records of the two outbreaks are

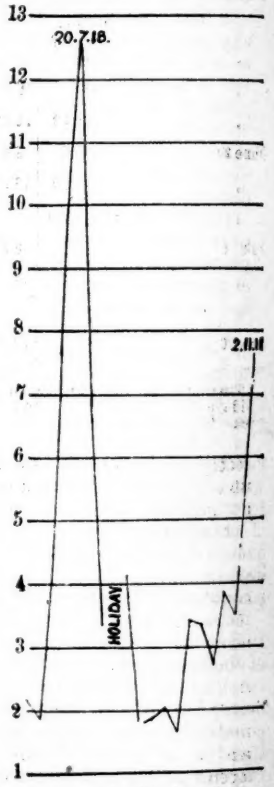

DIAGRAM 4.—Factory J. M (employing 1,451 men).

* These points are well displayed in Dixey's monograph, *Epidemic Influenza*, Oxford, 1892.

† Lib. v, cap. 5. Deaths were attributed by Sydenham, who did not add charity to his other virtues, to the incompetence of his brother practitioners—"insana hac sapientia morbum sua natura levissimum et facile sanabilem in periculosum ac saepe letalem transformabant."

‡ The course adopted by the Medical Department of the Ministry of Munitions was to circularize during the first week of October the managers of hostels, warning them that a renewal of the epidemic might occur, that the individual attacks would probably be more serious, and that efforts should be made locally to secure adequate treatment.

§ The interval between secondary and tertiary was only some two and a half months in the North (see C. 7051, p. 8), about the same as between this year's two epidemics.

Date.	Factory.	Maximum Reached. Date.	Maximum Reached. Percentage.	Return to Normal.* Date.	Return to Normal.* Percentage.	Duration in Weeks.	Average Time lost for Weeks of Epidemic.	Average Time lost in May.
1918.		1918.		1918.				
June 1	A. W	July 6	11.78	July 20	4.42	7	7.42	3.22
,,	B. M	,,	12.86	July 27	5.09	8	9.10	5.93
,,	C. W	June 29	22.66	,,	9.90	8	17.33	14.13
June 8	B. W	,,	20.91	,,	9.55	7	15.79	7.92
,,	A. M	June 22	7.93	July 20	4 80	6	5.43	1.72
,,	D. W	,,	21.53	,,	8.21	7	15.46	7.22
,,	E. M	,,	14,26	,,	5.03	7	8.27	5.59
,,	F. W	July 6	21.41	Aug. 3	8.78	8	13.86	§
June 15	E. W	,,	16.27	July 20	9.23	5	14.06	11.32
,,	D. M	,,	19.71	Aug. 27**	9 04	11	16.09	7.06
,,	G. W	,,	22.06	,,	10.08	6	17.42	8.47
,,	C. M	,,	21.95	,,	8.29	6	16.62	11.83
,,	H. M	,,	15.91	,,	8.80	6	13.12	8.59
,,	I. M	June 22	21.96	,,	7.47	6	12 13	4.12
,,	I. W	,,	32.95	July 20	4.95	5	17.39	8.82
,,	J. W	July 27	16.78	Aug. 3	9.32	7	11.42	5.01
,,	F. M	July 6	15.31	,,	11.53	7	13 64	§
,,	K. M	June 29	22.13	July 20	8 80	5	15.78	6.16
,,	K. W	July 6	18 42	July 27	3.96	6	13.66	5.11
,,	L. W	July 20	21.05	Aug. 3	6.86	7	13.72	4.45
June 22	G. M	June 29	17.68	July 27	5.23	5	11.42	6.93
,,	H. W	July 6	21,95	,,	9 90	8	16.97	13.06
,,	M. W	June 29	25.37	Aug. 3	5.64	6	12.74	2.87
,,	M. M	July 6	15.33	,,	5.51	6	9.85	4.23
,,	N. W	July 20	10.42	July 29	2.41	5	5 90	4.25
June 29	O. M	July 6	9.48	Aug. 3	7 00	5	9.49	6.57
,,	J. M	July 20	16 25	,,	4.82	5	10.01	5.04
,,	P. M	No work		July 27	5.93	4	—†	5.18
July 6	Q. W	Aug. 3	8.23	Aug. 10	6.49	5	6.94	5.39
,,	N. M	July 20	19.79	Aug. 3	0.35	4	10.15	3.45
,,	P. W	No work		July 27	5.43	3	6.99	2.81
July 20	R. W	Aug. 3	20.87	Sept. 7	4.48	7	16 86	4.34

* These figures are affected in some cases by the disturbance due to holidays. ** Duration affected by holidays. † Incomplete for worst week. § No returns.

directly comparable. One sees at once that we are dealing with a quite different epidemiological fact. Let us ignore for a moment the question of symmetry and consider that of concentration. As I have pointed out, the salient features of a primary epidemic are a rapid and quasi-symmetrical evolution. Consequently the frequency is very closely concentrated around the maximum.

To express this numerically, the summer epidemic of 1918 in the Royal Air Force included nearly 80 per cent. of the total incidence within the three weeks containing the maximum, and the Munich epidemic included just over 80 per cent. within the same limits. Now if the current epidemic has reached its maximum, not more than 65 per cent. of the incidence will probably be so concentrated, and the duration will therefore be longer than in the summer; if, as suggested by the ratio of the last two ordinates, the maximum is not yet attained, then the quota of the three worst weeks is likely to be still smaller and the complete duration still longer.

The diagram of factory sickness leads to the same inference, which is that, from the standpoint of prevalence, the present is a typical secondary epidemic congruent with that of 1891. But this way of looking at the facts leaves out of account the appreciably higher fatality we are experiencing. Here again part of the explanation is afforded by general epidemiological considerations.

If the view of the relations between primary and secondary epidemics of influenza just outlined be accepted, it follows that, *per accidens*, we have had ill luck in 1918 and had good luck in 1889. In 1889 the primary epidemic reached us in the winter, the secondary appeared in a more clement season, actually skipping a year; but since the epidemic constitution of a secondary influenza period is pneumonic—the old-fashioned nomenclature is useful—we should anticipate a relatively low mortality in a summer secondary, and a relatively high mortality in a winter secondary; one remembers the extreme instance of plague, the change of constitution in the Great Death of 1348–49 between summer (bubonic) and winter (pneumonic). This general hypothesis goes some way to explain the situation, but we also have accessory factors peculiar to the war. I believe that gross overcrowding and fuel restrictions are of particular importance here. That food rationing has had anything to do with the epidemic seems to me improbable. The epidemiological indications of disease engendered by want of food are sufficiently distinct. Prior to an epidemic explosion there is always a slow but fairly steady increase of morbidity.[4] Examination of records which have been maintained in the Ministry of Munitions with the object of detecting any ill effect of rationing, has revealed none of the pathognomonic signs of scarcity (Diagrams 5 and 6).

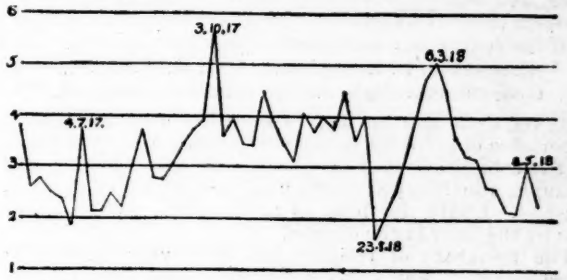

DIAGRAM 5.—Men. Rations and sickness rates; one year.

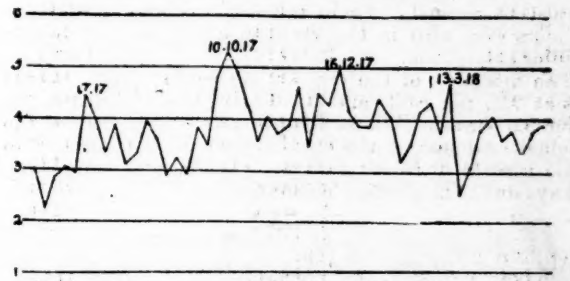

DIAGRAM 6.—Women. Rations and sickness rates; one year.

When to this is added the experience of influenza amongst our own adequately fed, and amongst other superabundantly nourished troops, we shall have little reason to regard food shortage as a probable factor.

It appears, then, that the origin of the summer epidemic must be explained upon such epidemiological principles as will account for the primary wave of 1889–90, that the current outbreak is *in pari materia* with that of 1891, its excessive mortality being mainly due to the accident of season, aided by the special circumstances of overcrowding and fuel shortage which are due to the war. In a word, this is not *essentially* a war epidemic.

If what has just been said be worthy of acceptance merely as a working hypothesis, some important conclusions follow:

It is unlikely that the present epidemic will be extinguished for some time, and it is likely that a recrudescence will be observed next year. Further epidemiological research is necessary to unravel the cause groups responsible for shaping the epidemic forms. I have used the terms symmetry, asymmetry, concentration, in a popular sense and have not introduced the analytical refinements of modern statistics. Such refinements could not be applied to the older mortality data with any hope of success, but it is otherwise with the material now in process of accumulation. A careful dissection of the epidemic frequency distributions should enable us to separate the epidemiological factors, work which, correlated with that of the bacteriologists, must precede any

but a crudely empirical system of prophylaxis. The recent researches of Sir Ronald Ross and of Dr. Brownlee illustrate the importance of numerical epidemiology, and the final solution of the influenza problem will only be obtained by the harmonious co-operation of epidemiologists and bacteriologists.

REFERENCES.
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Preliminary Report
ON THE
INFLUENZA EPIDEMIC AT BRAMSHOTT IN SEPTEMBER-OCTOBER, 1918.

BY
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LIEUT.-COLONEL C.A.M.C.,
OFFICER IN CHARGE MEDICAL DIVISION, NO. 12 CANADIAN GENERAL HOSPITAL, BRAMSHOTT.

INTRODUCTORY NOTE

BY
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Consulting Physician to the Canadian Forces in England.

COLONEL COLE and his officers have had a most extensive experience of influenza in the recent epidemic. The notes of the complications of the disease are very valuable—for example, the frequent rupture of the recti abdominales muscles. I have not been as much struck as the writer was by the fetor in the disease.

The frequency of relapses has been very noticeable; these relapses have often occurred several days (in one case ten days) after the temperature had originally returned to normal. Such relapses occurred while the patients were still in bed, and hence were not due to any chill or exhaustion.

The mortality of the cases admitted to hospital works out at 7.25 per cent., and of all the cases reported in the camp 3.6 per cent., which is noticeably higher than in the original epidemic of the spring, but low as compared to some reports of recent ravages. Death was practically always due to respiratory complications.

CHARACTER OF THE OUTBREAK.

After the outbreak of influenza in May and June our hospital had very occasional admissions of cases of this disease until the later part of September. On September 24th three cases reported, and on the succeeding days 9, 17, 24, 26, a maximum of 174 being reached on October 5th. Since then the epidemic has been abating, and on November 7th the total admissions for influenza were only 12.

In all, 2,247 cases have passed through hospital out of about 4,500 cases in the area; 163 cases had a fatal termination, the period of illness varying from five to twenty-seven days, and the pathological changes affecting the lungs or myocardium.

The usual history was of sudden onset of chilly feeling, headache, general aching, and weakness with dizziness; then cough and tightness in the chest, with glairy sputum, and very frequently epistaxis. Objectively an indescribable fetor was present in even the mildest cases, and, in the very severe, was almost overwhelming. It disappeared before complete recovery of the patient. The febrile course of the disease varied from twenty-four hours to fifteen days' continuous fever, running as high as 106.6°, inclined to be remittent, and ending by lysis. The types might be considered as:

(*a*) Mild, temperature becoming normal within three to seven days without disturbance of pulse or respiration. Considerable weakness persisted, and renal irritation was usually present. Even these mild cases showed a tendency to tachycardia on slight exertion in convalescence.

(*b*) The next grade of severity ran a course of five to twelve days with high fever, marked cyanosis or livid pallor, and rapid respiration—all evidences of severe toxaemia, with very few signs in the chest except of diffuse emphysema or of bronchitis down to the capillary tubes, with sputum moderate to copious, glairy to muco-purulent to yellow-green purulent, and becoming dirty sanguineo-purulent to dark clotted blood. In some cases bright red blood was expectorated, as much as 4 oz. at a time; one case, for which no other cause could be found, proved fatal from haemoptysis. A number of these cases proved fatal, and showed peribronchial induration or patchy central bronchopneumonia.

(*c*) The most severe types were either (1) primary marked bronchitis with profound toxaemia, rapidly becoming pneumonic, or (2) a primary toxic type as in (*b*) above, the temperature falling to normal or thereabouts for one to six days and then rising again to a secondary severe pneumonic course, with a frequently fatal issue.

SPECIAL CLINICAL AND PATHOLOGICAL FEATURES.

Some peculiar clinical and pathological features were noticed in this series of cases. In the first place very marked fetor of the exhalations, so offensive in some cases as to render careful chest examination difficult, was pathognomonic.

The Respiratory Tract.

In the respiratory tract there was marked congestion from the nares to and through the pleura. The respiratory rate was frequently out of all proportion to pulse or temperature, fifty to the minute being often maintained for a week, with pulse not above 110. Rhinitis with epistaxis, often recurrent, was present in over one-third of the cases. Pharyngitis, tonsillitis, laryngitis, and tracheitis (often pseudo-membranous, causing dyspnoea, stridor, and inspiratory retraction of lower ribs), bronchitis, and bronchiolitis.

The cough was of several types—(1) explosive, (2) paroxysmal, closely resembling pertussis, and in a few cases was (3) "brassy." The bronchitis, at first dry, afterwards usually became moist with abundant muco-purulent sputum. The inflammatory condition extending deeper, lobular and pseudo-lobar pneumonia of variable extent developed. Fibrinous, sero-fibrinous and sero-purulent pleurisies occurred, 16 cases showing definite empyemata, streptococcic more frequently than pneumococcic on direct smear. Compensatory emphysema often developed out of proportion of areas of consolidation, and in 12 cases with severe chest signs interstitial emphysema developed in the mediastinum, and so extended up to the malar eminences and down over chest and abdomen. Only one such case recovered. Most of these cases showed definite small pulmonary abscesses either in continuity with the mediastinum or parietes. No cases of pneumothorax were observed. Areas of haemorrhage into the lung tissue were so often seen, in various stages from recent occurrence to liquefaction, that this condition might be considered almost pathognomonic of the disease. One very toxic case died from sudden onset of pulmonary oedema on the eighth day with very little consolidation. Several cases showed only "purulent bronchitis." Four cases showed activated pulmonary tuberculosis. Two of these became miliary, two miliary of the lungs, and one of the latter developed tuberculous basal meningitis.

Circulatory Effects.

The early cyanosis was toxic rather than asphyxial. The tongue itself was often of dark indigo and the whole body of a lilac tint for several days before death. Pulse usually relatively slow—for example, respirations 40, pulse 88, temperature 104°—and often dicrotic. The systolic blood pressure in previously healthy young adults often ran below 100 mm., and diastolic could hardly be estimated. In only one case was recent pericarditis found, and no recent endocarditis. The main change was myocardial, but rarely accompanied by right heart dilatation. The circulatory failure was often of very sudden onset, a pulse of 100 of good quality becoming 140 within two hours, and ceasing in less than four. The blood itself clots readily though purpuric eruptions were noted in some cases, as well as haemorrhages into the lungs and muscles. Phlebitis, brachial and saphenous, was not rare. There was usually a leucopenia, 2,400 to 9,000 white blood corpuscles per c.cm. in purely toxic cases, and even in

extensive bronchopneumonia, but with pulmonary abscess formation, empyema, or other septic complications the count showed from 9,800 to 24,000. This leucocytosis or else the local reaction seemed to render the prognosis more favourable though not invariably so.

Blood cultures were negative, whether taken early or late.

The superficial and deep cervical and axillary lymph glands were almost constantly enlarged in severe cases. The peribronchial glands were much swollen, and occasionally almost broken down. The intestinal and mesenteric glands were not enlarged even in the cases with diarrhoeal symptoms. The spleen was rarely palpable, nor found enlarged *post mortem*.

Digestive Manifestations.

These were variable. There was the usual febrile mouth, with excess of slimy and most foul mucus. Anorexia, nausea, and vomiting were frequent, the latter usually exceedingly forcible, the vomitus consisting of large quantities of bright green fluid. Epigastric pain, with some rigidity, was a frequent complaint, and jaundice of considerable degree was usually of bad omen, fairly marked hepatic degeneration, and occasionally perihepatitis being found *post mortem*. Independent of purgation, several cases of profuse bloody diarrhoea and two of watery diarrhoea, with severe colic, occurred. Splenic and hepatic enlargement were rarely present. Abdominal distension was usually a late unfavourable sign. Lieut.-Colonel J. G. W. Johnson had to operate on five cases of influenza complicated by appendicitis, and found one gangrenous, one perforated, with abdomen full of cloudy fluid, and three acute catarrhal, with terminal inch of the appendix much congested. At autopsy many appendices showed peculiar bulbous terminal inch, with marked congestion of surface veins. In one case a mild serous effusion, and in several enterospasm, with slight ascites, was observed. No lesions were observed in the gross in the bowel wall.

Genito-urinary Signs.

Pain across the lumbar region was a common complaint, and in almost all febrile cases a mild nephritis developed—albuminuria, red and white blood corpuscles, and granular and hyaline casts being observed. In several cases the urine was distinctly bloody and decreased in quantity. Retention occurred in several, but not suppression. No renal oedema was observed. *Post mortem* many kidneys were acutely haemorrhagic, resembling scarlatinal nephritis. In over half a dozen cases there was swelling of the testicle and its coverings. One fatal case showed the coverings principally involved and gangrenous, streptococci present on cultures. The others cleared up without suppuration. There were over thirty cases of swelling of the parotid gland and capsule, occasionally bilateral, sometimes associated with the preceding. These were not clinically epidemic parotitis, but allowed free movement of the jaws, and the duct mouths showed little change. One case suppurated. This complication occurred in one patient who had had mumps before.

Special Senses.

Hearing was very commonly dulled, and Captain J. A. Atkinson reported frequent occurrence of haemorrhage into the tympanic membrane. This occurred in some cases without pain, but in about forty there developed acute otitis, and one quarter of these had mastoid involvement. Four cases of frontal and ten of maxillary sinusitis were observed. Loss of sense of smell with fetid purulent nasal discharge and copious repeated epistaxis were observed. In several cases over twelve ounces of blood were lost at one bleeding, and packing had to be resorted to.

There was periocular puffiness as in whooping-cough, with conjunctival injection going on to pus formation, and occasionally blepharitis was present.

Cuticular.

Very frequently a marked miliary sudaminal rash was present, occasionally patchy purpura, punctate erythema, jaundice and cyanosis, either turgid, livid, or ashy. One case showed purpuric blebs. Some very delirious cases showed marked tache cérébrale. Interstitial emphysema occurred as described. Erysipelas of the face and the trunk with various local abscesses in the scalp, axilla, epitrochlear gland and thigh occurred, complicating the disease.

Joints and Muscles.

No definite joint lesions were observed, but arthralgia in knees and shoulders was complained of, while a rheumatic fever, a gonorrhoeal and a rheumatoid arthritis were lit up by the influenzal attack.

Myalgia and muscular weakness were very common symptoms. Abscesses were found in some muscles, and marked degeneration was repeatedly noted in the rectus abdominis. The muscle looked grey, cooked, and readily flaked, three hours after death. Often there was marked haemorrhage, as much as two ounces, into the sheath of the rectus, and the muscles themselves were frequently found spontaneously ruptured as cleanly as though cut with a knife. The haemorrhage was sometimes present throughout the length of the sheath from the costal cartilages to the pubis, though usually only in the lower quarter. Myocardial degeneration was frequently very obvious at section.

Nervous System.

Frontal headache and retro-ocular pain were of moderate severity. No breakbone pains were encountered. Pupils were normal and reflexes normal except knee-jerk, which was often difficult to elicit. Paraesthesia mild, involving the right leg, was noted in one case and a transient Bell's palsy in another. Sleeplessness from toxaemia, not air hunger, was a trying symptom. In cases with fever, even of short duration, a low muttering delirium, with tremor, subsultus, and carphologia, and occasional loss of control of organic reflexes, was frequently observed. Quite a number were very noisy and active in their delirium. Convulsions with cervical rigidity, opisthotonos and tetanoid spasms of hands and feet, occurred in several cases; only one recovered. The spinal fluid was clear and culture negative. No increased cell count was noted, except in two complicating cases—(*a*) a hemiplegia due to tuberculous basal meningitis, confirmed *post mortem*, and (*b*) a case with marked stupor which is now apparently convalescing, but which has repeatedly shown an increased cell count on puncture with as much as 80 per cent. lymphocytes, and on film on one occasion showed acid-fast bacilli. The brains, with the exception of one of these cases, have shown no gross change.

The pathological work quoted above was in the main done by Captain A. Montgomery of this hospital.

TREATMENT.

For purposes of treatment our patients were divided into three groups under Major Pope, Major Shannon, and myself. All patients were put to bed in moderately cool rooms at the earliest moment available, usually the fifth or sixth day of disease, and were not allowed up until the temperature had been normal for at least three days. In spite of this precaution one very mild case, whose chest had been negative, after a few hours up developed a massive lobular pneumonia with evidence of myocardial degeneration and died within forty-eight hours. Posture in bed was used to allay cough and also to promote expectoration.

Fluids only, and very freely, composed the diet, on a basis of four pints and four eggs to each sick man.

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The preliminary headache, general aching, and chilly feeling were relieved by phenacetin, aspirin and Dover's

powder, with hot drinks, in small doses. Groups of cases were put on—

1. Urotropin,
2. Quinine sulphate,
3. Salol,
4. Tr. quinin. ammon.,
5. Sodium salicylate,
6. Salicin,
7. Creosote and pot. iodide,
8. Oil of cinnamon.

These were all used in varying doses, and none were found to exercise any specific effect. Carbolic acid was not used owing to frequent renal irritation.

Serums—anti-diphtherial, pneumococcic, streptococcic, staphylococcic (the last three being polyvalent), also normal horse serum—were used, and seemed in some cases to reinforce the patient's resistance, but not to exert a specific effect.

Eusol has been tried intravenously in doses up to 250 c.cm., so far with uncertain benefit.

To reduce temperature: (1) Sponges tepid to cold, or alcohol rub if above 104°; (2) cold pack to neck and chest; (3) purgation and enemata; (4) aspirin, 5 grains for single dose, if not responding to the above.

Stimulants: Fresh air and oxygen, brandy or whisky up to an ounce every two hours, strychnine and atropine, strophanthin, various digitalis preparations, camphor in oil, pituitrin, and adrenalin, were each used, as indicated. Intravenous saline with or without glucose 25 per cent. was also used.

Sedatives: Cool sponging, chloralamide, ammonium bromide and chloral, veronal, codeine, heroin, hyoscine, morphine and atropine, pulv. ipecac. co.

From the multitude of agents employed their comparative futility is obvious. The line to follow in treatment is "primum non nocere," and the more expectant and symptomatic the course, the more satisfactory will be the result. This becomes particularly plain on observing a very large series of cases such as the present epidemic has afforded us. The natural variations in the course of the disease are legion; our influence on them is problematical.

PROGNOSIS.

Early cyanosis, high fever, and rapid respiratory rate are usually unfavourable symptoms, all being evidence of severe toxæmia. Relatively slow pulse-rate is not necessarily favourable, though a high rate is always ominous. Development of local septic foci promises favourably; leucocytosis is usually favourable. The delirium may be intense early in the case and completely disappear, the patient becoming perfectly rational and conscious of a sense of well-being, although still intensely cyanotic, and so dyspnoeic that he can hardly answer questions; in fact, this condition may go on to within a few minutes of dissolution. Bronchopneumonia is always serious, and, judging from *post-mortem* findings, carnification and scarring of the lungs, with probable bronchiectasis, will be sequelae inevitable in a great many cases.

POINTS IN THE TECHNIQUE EMPLOYED IN THE ISOLATION AND CULTIVATION OF ANAËROBIC BACTERIA.

BY

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AND

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As the isolation and cultivation of the anaërobic bacteria occurring in wounds present considerable difficulties, especially under active service conditions, a description of some methods that we have found useful may be of assistance to bacteriologists who have not yet evolved a technique of their own and are called upon to undertake the bacteriological control of the effects of serum and other treatment of gas gangrene, etc.

Media.

For fluid cultures we have obtained excellent results from brain broth, and brain broth with 1 per cent. of glucose, lactose, or saccharose. The addition of the sugars promotes rapid growth of the saccharolytic group of micro-organisms, but the acid produced leads later to their destruction. For preserving cultures which can be worked out at leisure the plain brain broth is preferable.

It is prepared by adding to a litre of normal saline solution about 200 grams of chopped up brain substance. The medium is autoclaved in a flask and afterwards in tubes, each of the latter containing about 20 c.cm. of the broth and brain substance. In tubing it is convenient to pour the contents of the flask into a sterile dish, and with a sterile teaspoon to add the solid brain matter to the tube, and later to pour in about an equal volume of the more fluid part. If sugars are employed, acid fuchsin can be used as an indicator. These brain media can be kept indefinitely, and when inoculation is made deep down into the tube good growth of anaërobes will occur though the tubes have not been recently boiled, and though no attempt has been made to exclude air by the use of liquid paraffin. It is easy to remove material for film preparations, etc., by means of a long platinum wire, as there is no paraffin to necessitate the use of capillary pipettes.

Brain lactose broth is an excellent medium for the cultivation of streptococci. The effects of the growth products on the brain substance can be observed, *B. sporogenes* (Metchnikoff) causing a blackening, whilst *B. welchii* has no such effect. Von Hibler got as good results from the use of chopped up brain as he got from the use of chopped up muscle, but in this country the latter medium has been most extensively used.

For plate cultures we make most use of blood agar. We keep a stock bottle of sheep's blood always at hand.

The blood is preserved by the use of formalin and ether. A wide-mouthed bottle with a mark at the 1,000 c.cm. level has added to it 10 grams of sodium citrate dissolved in about 20 c.cm. of boiling distilled water. At the slaughter-house 1 litre of blood is received into the bottle, which is well shaken during the process. In the laboratory the uncoagulated blood is added through a sterile funnel to a bottle which has a tightly fitting cork. To 1 litre of blood 1½ c.cm. of formalin (40 per cent. formaldehyde) and 30 c.cm. of ether are added. The bottle is shaken, the stopper is tied in, and it is placed overnight in the incubator at 37° C. In making blood agar 3 c.cm. of the laked blood are added to every 100 c.cm. of melted agar, and the mixture is kept at 50° C. for half an hour to drive off the ether. The dilution annuls the antiseptic action of the trace of formaldehyde in the medium.

The blood agar prepared in this way is of a light brown shade and is fairly transparent. On being placed under anaërobic condition it becomes of a bright red hue. On this medium colonies of *B. welchii* are leaf-shaped; the centre of the colony is moist and more elevated than the flat, uneven margin. Colonies at the end of a week's incubation average 5 mm. in diameter. *B. sporogenes* (Metchnikoff) forms a spreading growth growing down into the medium, so that scraping the surface leaves the outline of the colony intact. *Vibrio septique* grows somewhat like *B. sporogenes* but does not invade the medium. *B. tetani* grows out from the main mass of the mixed growth as a very fine film with woolly margins. Tulloch has studied the effect of *B. sporogenes* in promoting the growth of *B. tetani* in fluid cultures. On the solid blood agar plate the cleavage products of *B. sporogenes* doubtless assist the growth of *B. tetani*, and as it spreads over the uninoculated part of the plate there is a fair chance of separating it from other anaërobes in the mixture.

If glucose is added to the blood agar the colonies of *B. welchii* are raised and opaque just like colonies of *Staphylococcus albus*. Litmus may be added as an indicator, but gets bleached under anaërobic conditions; on exposure to air the colour returns. We have found that *B. welchii*, *B. sporogenes*, etc., are able to grow on blood agar containing ½ per cent. of sodium taurocholate. This observation has facilitated the isolation of *B. welchii* from a mixture of other bacteria. The growth is not so luxuriant with as without the bile salt, but the presence of the bile salt tends to prevent confluence of the growth. Crystal violet in the proportion in which it is present in the Drigalski-Conradi medium, that is, 1 in 100,000, does not inhibit the growth of *B. sporogenes* on a lactose blood agar plate. The same plate heavily inoculated with *B. welchii* often yields only a very few colonies, but the colonies are large in size. There would appear to be a difference in their power to resist the antiseptic action of the dye, not only among different strains, but also among individuals of the same strain.

Symbiosis.

We have on several occasions isolated from wounds a Gram-negative cocco-bacillus which promotes the growth

of anaërobes in a most remarkable manner. This coccus in morphology resembles the meningococcus but is rather more uniform in size, and a few of those seen in a film may be ovate or rod-shaped. Its growth on agar resembles that of the *B. coli*, and it remains viable for months without subculture. It is an obligatory aërobe. As regards its fermentative activity, the only substances we found attacked by it were glucose and galactose, and with these substances it produced acid but no gas.

We have found that with lactose, laevulose, maltose, saccharose, salicin, mannite, dulcite, sorbite, erythrite, glycerin, raffinose, xylose, arabinose, rhamnose, inulin, adonite and amygdalin no fermentation occurs. Gelatin is not liquefied. It tends to form a pellicle in peptone water and bouillon. Indol is not formed. It grows readily on MacConkey's bile salt plates. In ordinary bouillon or peptone water if this coccus is present, the anaërobes present in wounds grow freely in tubes exposed to the air, and if sugars are added the question of the fermentative activity of the anaërobes can readily be decided since the coccus cannot produce gas in any medium, and can produce acid only in glucose and galactose. The motility of the anaërobes can also be readily examined in a drop of the culture, as the cocci are non-motile and absorb oxygen from the fluid and thus allow the anaërobes to have the best conditions for their locomotor powers. When a rich growth of spore-bearing anaërobes has occurred in the mixture, pure cultures can be obtained by heating to 80° C. for twenty minutes to destroy the coccus, and then inoculating the surface of blood agar plates.

The presence or absence of proteolytic ferments can be determined by adding cubes of coagulated egg albumen or inspissated serum to broth tubes seeded with the anaërobic bacterium and cocco-bacillus.

The haemolytic activity of anaërobic bacteria is easily demonstrated in open broth culture containing a few drops of blood and the coccus, since the latter has no haemolytic action. The explanation of its favouring action on anaërobes would appear to be due partly to its rapid assimilation of the oxygen in the medium and partly to substances resulting from its autolysis and growth being added to the medium. As already mentioned, if a plate is inoculated from such a mixture and at once placed under anaërobic conditions only the anaërobes develop, the coccus failing to grow in the absence of oxygen.

B. coli and the enteric group of bacteria also act as symbiots for anaërobes, but their fermentative activity renders them unsuitable for the study of the enzymes of the anaërobes. Another most excellent micro-organism for this purpose is the *B. pyocyaneus*, which forms acid but no gas from glucose and fails to ferment the other usual test substances. Recently we have employed a cocco-bacillus which fails to ferment even glucose and galactose.

To examine the action of anaërobes on fermentable substances in association with our coccus, we recommend the following medium. Glucose-free broth is prepared in the usual way, and to it is added ½ or 1 per cent. of the substance being investigated. Durham's tubes are useful, but the gas produced causes so much frothing of the surface that they are not absolutely necessary. As an indicator acid fuchsin (which has been neutralized and decolorized by the addition of normal caustic soda) gives beautiful results—1 c.cm. of a ½ per cent. solution being added to every 100 c.cm. of the medium. Free gas formation and a bright cherry-red colour indicate a positive reaction. It must be remembered that the anaërobes, even *B. welchii*, are capable of forming gas from peptone water and bouillon. We have noticed this in the Durham tubes, both in the presence and absence of the symbiotic coccus. In the absence of the coccus the broth had been boiled and cooled just before its inoculation. This gas formation, however, is not attended with any change in the acid fuchsin indicator.

As a means of enrichment for the saccharolytic group a fermentable sugar is useful, whereas the proteolytic group tend to outgrow the saccharolytic in its absence. The fermentation results obtained by this method agreed with those obtained by the use of brain broth and those obtained by the use of blood in the medium. When 3 per cent. from our stock blood bottle is added to broth and incubated overnight, the medium has a yellowish-brown shade. *B. welchii* and *B. sporogenes* grown in such tubes produce a bright cherry-red appearance, and on spectroscopic examination the band of reduced haemoglobin is seen. This effect is no doubt due to the haemolytic action of the anaërobes on the partially laked blood.

When 3 per cent. of the blood is added to broth and the mixture autoclaved, and 1 per cent. of fermentable substances added and steamed, and then put into tubes each containing 20 c.cm. and having coagulated blood clot at the bottom, a suitable medium for the examination of the enzymic activity of the bacteria is at hand. It must be steamed just before use to drive off the dissolved oxygen, and the inoculation must be made into the blood clot. Substances which are split up by *B. welchii*—for example, glucose, lactose, saccharose—favour the growth of the organism enormously. The reaction can be tested by withdrawing drops and applying them to litmus paper. If the fermentable substance added is not capable of being used by the anaërobe in question, the amount of growth is scanty, and is mainly confined to the depth of the tube. Where acid and gas are produced the blood clot becomes a dirty yellowish-brown colour, and is carried by gas bubbles to the surface of the medium. In the absence of carbohydrates, *B. welchii* causes the clot to become bright red; *B. sporogenes* makes it black.

Plate Cultures.

Plate cultures can be quickly obtained by the insertion of a perforated metal or glass disc between the two halves of a Petri dish as described by one of us in a former paper. We have found the enamelled metal lid of sputum cups exceedingly useful for this purpose.

The cover of the Petri dish is fastened to the under surface of the disc by means of plasticine overrun with melted paraffin wax. After pyrogallic acid and caustic soda solution have been introduced into the cover the plate with the medium that has been inoculated is inverted over the disc and fastened down with plasticine. The diagram explains the method. With this method we have been successful in cultivating *B. tetani* direct from wounds. Lately we have found the following device effective and exceedingly simple; moreover, it is clean, and the apparatus required is so cheap that dozens of plates can be used at the same time. In most military hospitals each patient is provided with an enamelled iron soap dish and cover. This dish is of the shape and size shown in the diagram, and it can hold two Petri dishes. To use this utensil four little pellets of plasticine are placed on the ledge surrounding the bottom of the dish. The cover of the lower Petri dish is supported by these pellets or by a horizontal bar of thick copper wire, and a space is left between the cover and the bottom of the dish, into which just before use two grams of pyrogallic acid and a few centimetres of strong caustic soda have been placed. When the inverted Petri dishes have been placed in position, the lid with a layer of plasticine around the under surface of its margin is applied and pressed firmly down. Care should be taken to have the covers of the Petri dishes dry, so as to prevent running together of the colonies. This can be readily effected by wiping the condensation moisture with sterile cotton-wool and holding the cover for a few seconds over a spirit lamp flame. To remove the cover a screwdriver is inserted, and the lid prized up. The same lids with the plasticine adherent to them can be used indefinitely, and the dish can be washed out in a few moments. In this method there need never be any staining of the finger with the pyrogallic soda mixture.

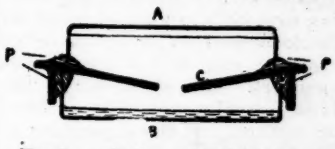

FIG. 1.—A, Bottom of Petri dish, containing inoculated medium. B, Inverted lid of Petri dish, containing solution of pyrogallic acid and caustic soda. C, Enamelled iron lid of sputum mug. P, Plasticine.

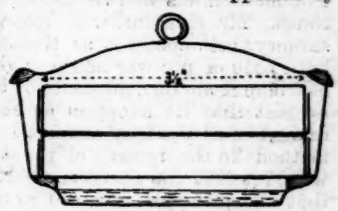

FIG. 2.

The sketch shows a section of the apparatus and its contained Petri dishes.

THE FEMORAL ARTERY IN WAR SURGERY.

BY

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It is a commonplace amongst surgeons that those sections of our standard works on operative surgery which deal with amputations and with haemorrhage will have to be in large measure rewritten after the war. The exact measure remains to be seen, for there is a danger apparent at present of overlooking two facts—namely, that the muscular limb of a vigorous young man with fully-grown bones is surgically a thing very different from the limb of an emaciated subject of, say, articular tuberculosis, on the one hand, and the limb of a child on the other; and that the sepsis, actual or potential, which is universal in war wounds, is practically absent in civil practice. Much of the technique of the military wards and operating theatre

is out of place in the civilian clinic, and vice versa. A large measure of revision of our standard books, however, will be necessary in the light of the experience of the war.

As bearing alike on methods of amputation and the control of haemorrhage the femoral artery, the largest peripheral trunk in the body, presents some problems in operative surgery the interest of which has a wider range than the anatomical distribution of that artery. Amongst these problems the following are of constant recurrence:

The Control of Haemorrhage during the Operation of Amputation at the Hip-joint.

Amputation at the hip (transarticular, transcervical, transtrochanteric, or subtrochanteric) is one of the most common and one of the most critical of amputations. Haemorrhage is its chief risk. Our standard works contain descriptions of various methods of controlling it, each of which has its advocates. In the interesting work, *Amputation Stumps*, recently issued by G. Martin Huggins, the author, in discussing amputation at the hip, warmly advocates a variety of the operation well known as the "anterior racket" with ligature of the femoral vessels as the first step. Mr. Huggins, evidently in view of much of the teaching of the textbooks, describes his operation as "unorthodox." If it be so, one cannot but think that his heterodoxy will find support. Indeed, so far as the control of haemorrhage is concerned, some surgeons have long been converts to the method, and the experience of operating under war conditions is adding to their number. For years I have practised no other method, and in the printed notes on operative surgery issued to my classes have indicated its advantages.

Work during the war has confirmed the favourable opinion of the method. Initial ligation of the femoral vessels renders the surgeon independent of skilled assistance, and removes all risk of serious loss of blood, for the only other vessels severed in the operation are comparatively small branches of the sciatic and gluteal arteries. The method has had its supporters for years during peace times. Mr. Huggins, with exceptional experience of war surgery, commends it as the method of choice. In the light both of pre-war and war experience, many surgeons, of whom I am one, advocate it as the best method. It is evident that its adoption as such would necessitate the relegation of the textbook descriptions of not a few classic methods to the records of the past. Surgeons will watch with interest the decision finally arrived at, the more so that the principle involved in the initial ligation of the main vessels at the site of amputation is applicable to other amputations than that at the hip.

The Control of Haemorrhage in Amputation of any Portion of the Lower Limb Below the Upper Third of the Thigh.

In such amputations, and in operations for compound "smashed" bones, haemorrhage may be controlled by one or other of three methods—namely, the tourniquet, manual compression of the femoral artery, and temporary ligation of that vessel. The last mentioned, however useful it may be in a few cases in civil practice, has little field in war surgery, where the choice lies between the tourniquet on the thigh and digital compression of the femoral artery. The tourniquet is necessarily in universal use at present at the fighting fronts, where there is no substitute for it in certain circumstances. Its use also in operations is part of the stock teaching of our textbooks. But opinion is veering against its use. In the last issue (1918) of the official *Manual of Injuries and Diseases of War* it is stated that:

> The systematic use of the elastic tourniquet cannot be too severely condemned. The employment of it, except as a temporary measure during an operation, usually indicates that the person employing it is quite ignorant both of how to stop bleeding properly and also of the danger to life and limb caused by the tourniquet.

And again:

> Even if applied only for an hour it greatly interferes with the nutrition of the wounded tissues, and so favours the development of anaërobic organisms.

That and much of the teaching of our textbooks, however, still leaves the tourniquet, in spite of its dangers and disadvantages, apparently as the routine method of controlling haemorrhage during amputations and other operations on the limbs. Its disappearance from the operating theatre would involve considerable revision of sections of our textbooks. Opinion has not yet crystallized, but there are many surgeons who at present very rarely indeed use a tourniquet, and that only when amputating with no assistance, skilled or unskilled. I have not for many years used a tourniquet for any operation, and have found, in the lower limb, digital compression of the femoral artery against the pubic ramus quite efficient. A colleague requires no instruction, but an orderly, a sister, or a student, if acting for the first time, generally requires coaching on three points—namely, to stand on the outer side of the limb, to fix the thumbs for counter-pressure on the postero-external aspect of the ilium below the level of the anterior superior spine, and to press the fingers on the vessel just below Poupart's ligament. If the fingers are placed lower down the limb the artery is not caught firmly against the pubic ramus, and if the thumbs are placed against the trochanter instead of the ilium the hands are apt to be displaced during the operator's manipulations of the limb. Digital compression of the femoral is quite easily maintained by any hand of average size and strength in even the most muscular patient during the course of any amputation. During such operations as that for removal of smashed bone and damaged tissue or the excision of a tumour, compression is often not required at all, the compresser simply keeping his fingers on the femoral pulse ready to tighten his grasp instantly on request.

Prevention of Secondary Haemorrhage in "Open" Amputation Stumps in the Thigh.

Open stumps include guillotine stumps, flap stumps awaiting secondary suture, and stumps in which the sutures have cut out and the wound is gaping. The last is always, and the two first named ultimately often, suppurating and sloughing. Under such conditions secondary haemorrhage is a constant risk at any date after the first week, by which time the ligature is absorbed or dissolved in the pus. In all open septic stumps in the thigh which are a week or more old I make it a routine practice, as a preventive measure, to ligature the common femoral vessels. By the end of the first week after amputation the collateral circulation after ligature of the common femorals is ample for the needs of any stump down to the supracondylar level. For open stumps below that level, and certainly for those below the knee, ligature of the femoral in a septic limb carries a grave risk of resulting gangrene. Fortunately the need for it in such cases is less clamant than in thigh stumps. In the latter secondary haemorrhage constitutes too often a rapidly completed tragedy. In leg stumps the flow is much less copious (from one only of the three branches, anterior or posterior tibial or peroneal) and leaves time for the sister or orderly to apply the tourniquet or compress the femoral while the assistance of the surgeon is being got.

THE CURSE OF IMMOBILIZATION.

BY

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THOUSANDS of our soldiers have been more or less disabled for life simply and solely on account of prolonged immobilization of injured limbs. Case after case could be cited as examples of the harm done, and I am sure many readers of this JOURNAL can endorse the statement.

I have had four years' experience of war surgery in this country, first in a Territorial general hospital for a year, and for the last three years in a war hospital where I had between two and three hundred beds under my charge; besides this I have seen many cases in the Edinburgh Royal Infirmary and in private practice. I may therefore claim to have some experience.

If asked as to the lessons learnt during those four years, I would emphatically say, first, that nature is the most wonderful surgeon, especially when encouraged; secondly, that septic wounds should be thoroughly drained; thirdly, that from the very beginning frequent passive and active movements should be carried out, steadily increasing the range; that splints should never be used except when

absolutely necessary, and then only for as short a time as possible, and should never interfere with passive and active movements. I am writing now mainly of the upper extremity, but I am not by any means excluding the lower. Massage is a most excellent adjunct—far and away the best—to active movement. I lay but little stress on electricity or baths.

In war surgery the future usefulness of the wounded must be borne in mind, and in that relation the order of importance is—muscles, joints, and bones; not bones, joints, muscles. If a demand is made upon nature without undue pain, and carefully advancing, nature will always respond. Disuse, active and passive, means malnutrition of the part. Muscles atrophy, bones atrophy, blood vessels atrophy, pus tends to track along the intermuscular planes; passive and active movement help to drive the pus out.

When passive or active movements are begun early, pain is the danger signal that shows harm is being done, and the movements should be modified temporarily. When after prolonged immobilization adhesions have formed, however, pain has to be endured while the adhesions are being stretched or broken. I am not at all surprised, therefore, that there has been an insistent demand for the services of bonesetters, who overcome the adhesions which have been brought about by well meaning surgeons. Take, for example, the case of a man shot through the biceps. His forearm was placed at a right angle and kept in that position for weeks; he was then unable to extend the arm, and after many long weeks of massage recovery was incomplete. In the case of wounds through the forearm where the bones and nerves have escaped, and treated with splints for prolonged periods, it is found that when movements of a passive and active nature are attempted the patient is unable to carry them out owing to the formation of fibrous tissue during the period of immobilization. The most marked results from muscles involved are found in the hamstring muscles and the calf. How familiar is the sight of convalescent soldiers limping about the streets with bent knees and on their toes! The majority of these will never straighten their legs again or dorsiflex the foot in walking, owing entirely to neglect of the muscles and joints, and constant straightening and correcting by active and passive movements. Injuries to joints, even though septic, are not a bar to movement; the joints should be gently moved and encouraged, short of pain, and it is wonderful what results will ultimately be obtained, provided attention is paid daily to movement (passive at first and later active and steadily increased).

As to pain, the attitude of most present-day surgeons is wrong. For the last twelve years I have treated all fractures of the scapula, clavicle, humerus, and many of the forearm, without splints. I have no hesitation in applying splints if I think they are needed, but after the third or fourth day patients are satisfied with the lie of their arms in a sling. The main point, however, is that every movement of all joints and muscles should be encouraged, first of all passively and as soon as possible actively, and this should be carried out frequently during the day. It is surprising to see a patient with a fractured humerus, with possibly overlapping, extending the arm, flexing it and lifting it from the side, in the course of a fortnight or three weeks; by the time the fracture has consolidated, all the movements of the joints are perfect, provided the damage has not been too great. In simple fractures the results are admirable; in septic compound fractures I can say the same; but watch must be kept for collections of pus about necrotic bone, and these must be opened and drained, but should never interfere with the passive and active movements of the part. I feel compelled to write this, because I have seen such bad results not only from hospitals abroad but from hospitals in England and Scotland. A few examples of many that have passed through my hands may perhaps help to impress my view.

(*a*) Through-and-through bullet wound of the hamstring, with flexion of the knee, kept in the position of flexion for several weeks before coming under my care. Twenty to thirty pounds pressure over the extended knee cannot overcome the contraction, and the man is a probable cripple for life, walking on his toes with bent knee.

(*b*) Patient with a wound of the outer side of the humerus, not completely fracturing the bone, kept in a right angle splint for eight weeks. Unable to flex and extend elbow, rigidity about the shoulder, unable to satisfactorily close the hand; now, after four months of massage, unable to straighten the arm or flex it completely.

(*c*) Patient with a suppurating prepatella bursa kept for three weeks in a posterior splint and three weeks in a Thomas splint. Now scarcely any flexion of the knee.

(*d*) Patient with a suppurating and ankylosing knee-joint, several months in splints. No movement in the plantar flexed toes, plantar flexion of the foot, and no dorsiflexion of the foot possible.

(*e*) Numerous fractures of the humerus kept three and four months in a right-angle splint, because there was a septic wound leading to bone. Practically no movement at shoulder, elbow, wrist, and, in some cases, fingers.

I could go on giving endless cases of a similar nature. This needless disablement of men is really the most disheartening thing I know in the war. Sir Auckland Geddes as a medical man, and certainly the Minister of Pensions, should look into the matter with care, for it is one which involves the man power of the nation. I feel absolutely certain that the future will see a great reaction from this most remarkable age of splints.

VARIATIONS IN THE ACTIVITY OF THE CILIARY MUSCLES.

BY

MAJOR G. F. ALEXANDER, R.A.M.C.

THE activity of the ciliary muscles can be realized only by the routine practice of estimating the refraction when they have been completely paralysed, and again after they have recovered from the effects of the cycloplegic. Complete paralysis being hitherto only obtainable by the use of atropin, has been mainly restricted to children on account of the inconvenience of the prolonged paralysis of accommodation and the danger of inducing glaucoma in the elderly, and thus, as a 2 per cent. solution of homatropin and cocaine has in the case of young and vigorous adults frequently only a partial paralysing effect, variations in the activity of the ciliary muscles in adults have largely escaped observation. Early in the year, however, I found that cycloplegia as complete as that obtained by atropin could be obtained by a saturated solution of homatropin (16 per cent.); a large drop may be instilled in each eye without fear of toxaemia, and recovery is as rapid as after the use of the 2 per cent. solution—that is, in twenty-four to thirty-six hours—or if a drop of 1 per cent. eserin is instilled in two to three hours, and thus the benefit of atropin is obtained without the drawback of its prolonged paralysing effect. By the use of this solution in over 1,000 cases, supplemented by that of a special astigmatic chart, I have been able to observe some interesting variations in the activity of the ciliary muscles, which with those already familiar are briefly summarized as follows:

1. Both in hypermetropia and myopia the tonicity of the ciliary muscles varies from time to time: the difference in the vision recorded by different observers or the same observer on different days is thus accounted for, increase of activity necessarily lessening hypermetropia and increasing myopia, and relaxation the reverse.

2. In anisometropia unequal activity of the ciliary muscles frequently neutralizes more or less of the disparity.

3. Apart from anisometropia the ciliary muscles often show unequal tonicity, as is proved—(*a*) in either hypermetropia or myopia by difference in the corrections of the two eyes found on post-cycloplegic testing, although paralysis of the muscles showed that the eyes were equally ametropic; (*b*) in either hypermetropia or myopia, and even occasionally in emmetropia, by spasm of the accommodation taking place to an unequal degree in the two eyes, and even occasionally in one eye only.

4. Spasm of accommodation, apart from its commonest causes—namely, astigmatism and exophoria, the latter naturally acting chiefly in myopia—is frequent from overuse of the eyes for near work, especially if fine, under the electric light, or in insufficient light: though naturally most marked in hypermetropia it is found also in myopia and emmetropia; it is observed chiefly in young and neurotic subjects, but is found also in others, and even when they are well beyond the presbyopic age (I have notes of one case of spasm in an emmetrope aged 48 years).

5. While the contraction of the fibres of the ciliary sphincter in the states above noted takes place uniformly all round, establishing a degree of general tonicity, a contraction of some of the fibres or their relaxation from fatigue relatively to the rest may take place in segments of the sphincter, and this may be—

A. *Meridianal*—that is, when the segments are at the opposite ends of a meridian of the lens, in which case contraction increases and relaxation diminishes the refractive power of the lens in this meridian only. Such variations in activity occurring in both hypermetropia or myopia may either—

(*a*) Correct regular astigmatism, contraction doing so when acting in the meridian of least curvature of the cornea and relaxation when acting in the meridian of greatest curvature of the cornea. In this way hypermetropic astigmatism may be corrected, and though this is stated by Ernest Clarke and others to be possible only up to 0.75 D, I have recorded numerous cases of 2 and 3 D, two of 4 D, and two of 5 D in this way fully corrected, an interesting feature of some of them being that this correction was unattended by any symptom of eyestrain, this applying to both cases of 4 D noted. As on post-cycloplegic testing the cylinders found to correct the astigmatism in the static refraction were in some cases rejected, in others accepted, and in still others weaker ones were accepted, it is evident that, just as in the case of hypermetropia, we have to consider manifest, latent, and total astigmatism, the amounts of which vary in different cases and are subject to variation in the same case. Auto-correction of a low degree of astigmatism is common long after the presbyopic age, and I have notes of the correction of simple hypermetropic astigmatism of 0.75 D at 58 years.

(*b*) Cause regular astigmatism, in which case the segments may vary from time to time, necessitating corresponding changes in the axis of the correcting cylinder.

B. *Non-meridianal*—that is, not corresponding to one of the chief meridians of the lens, when its refraction is increased eccentrically so that, either in the existence of corneal astigmatism or apart from it, irregular astigmatism—that is, not correctable by glasses—results with occasionally monocular diplopia.

6. At times, from the above causes—and this I have found up to the age of 58—one or both of the ciliary muscles may pass into a phase of "irritability" from which regular astigmatism may be corrected or caused at intervals, and, if the latter, the meridian may be varied from day to day, while in either case the astigmatism may every now and then be rendered irregular, and then, if monocular diplopia is present, from variations in the segments the fainter object may appear displaced from the more distinct in different directions at different times. Naturally the above abnormalities in the activity of the ciliary muscles are a fertile source of asthenopia and are of special interest when found at an age at which they have been for the most part unsuspected.

7. As to treatment, it becomes imperative in all cases of asthenopia in which spasm or irritability of the ciliary muscles may be the possible cause, apart from lessening as much as possible the near work and doing it in a good light screened from the eyes by a green shade, etc., to paralyse the ciliary muscles as above and estimate the static refraction; and if the cylinders found necessary are not accepted and weaker ones accepted are still productive of asthenopia and we do not fear glaucoma, to keep the accommodation thoroughly paralysed by atropin for several weeks while the cylinders correcting the total astigmatism are worn and general and nervous tonic treatment carried out, when they will almost invariably be accepted—an alternative plan being to prescribe the cylinders correcting the total astigmatism for constant use, trusting to the corrective partial contraction of the ciliary muscles giving way in time.

ST. ANDREW'S COLLEGE, Toronto, is being converted into a military hospital, to serve as the chief demobilization centre for the whole of Canada. Twenty-five new buildings are to be erected, and when completed the institution will cover twenty-five acres of ground. Though not intended to be permanent, the hospital will be used for many years after the war for the treatment of invalided or incapacitated soldiers.

BLOOD PRESSURE IN PULMONARY TUBERCULOSIS.

BY

RICHARD J. CYRIAX, M.D.BRUX.,

M.R.C.S., D.P.H.,

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IN the JOURNAL of August 10th appeared an article by Dr. E. F. Cyriax on blood pressure in unilateral war traumatisms, pointing out that the pressures in the two arms do not always coincide, and, furthermore, that the pressure may be higher in one arm than in the other on one day, and the exact opposite a few days later. He pointed out also that the actual readings were influenced neither by the arm from which the first reading was taken, nor by the interval between the two readings.

A somewhat similar phenomenon appears to occur in some cases of phthisis, whether unilateral or bilateral—namely, that the pressure in the two arms is by no means invariably the same, a source of serious error being thereby introduced into the whole question of blood pressure in this disease.

The following observations were made upon 19 cases under the care of Dr. T. N. Kelynack at the Mount Vernon Hospital, Northwood. The readings were taken at one sitting, first on one arm and then upon the other, as rapidly as was compatible with accuracy, with a Riva-Rocci instrument, by the auscultation method combined with palpation of the radial pulse. Both systolic and diastolic readings were taken, but it is especially to the former that I wish to direct attention at present. Differences of 5 mm. or less have been disregarded in order to make every allowance for the rise induced by the constriction of the armlet.

Five patients, all males, were confined to bed, except where otherwise stated. Tubercle bacilli have been found in all their sputa. In two cases differences of more than 5 mm. in the systolic pressures were not found; two observations were made on each patient at intervals of some days. Both have lesions in both lungs.

CASE III.

R. B., aged 18. Infiltration right upper and apex right lower lobe. Haemoptysis 6 ounces September 18th.
September 27th. Blood pressure: R. 121.68; L. 119.68. (Systolic difference, R. + 2 = 0.)
October 4th. R. 136.83; L. 132.84. (R. + 4 = 0.)
Sodium nitrite, one grain, administered four times daily.
October 9th. R. 115.79; L. 113.78. (R. + 2 = 0.)
October 11th. R. (taken first) 118.94; L. 132.78. (R. − 14.)
October 12th. R. 114.82; L. (taken first) 131.80. (R. − 17.)
The systolic pressure is thus lowest at present upon the diseased side. Sodium nitrite is still being administered.

CASE IV.

W. J. B., aged 41. Infiltration both upper lobes, principally on the left.
September 27th. R. 124.84; L. 120.84. (L. − 4 = 0.)
October 7th. Dr. Kelynack considered that a fresh spread was probably taking place. October 9th. Dr. Kinton noticed that the principal activity was on the left side.
October 10th. R. (taken first) 102.85; L. 116.80. (L. + 14.)
October 12th. R. 124.88; L. (taken first) 136.90. (L. + 12.)
The systolic pressure is thus higher upon the side which is most active at present.

CASE V.

H. J. W., aged 47. Infiltration both upper lobes, principally upon the left, scattered foci throughout.
October 2nd. R. 105.80; L. 101.80. (L. − 4 = 0.)
October 4th, 5th, 6th. Patient rested up two hours.
October 7th. Sputum stained. Rest in bed.
October 10th. R. 128.84; L. (taken first) 114.82. (L. − 14.)
October 12th. Patient rested up two hours. Two hours after return to bed, R. (taken first) 116.82; L. 109.83. (L. − 7.)
All the above readings were taken while the patients were in bed.

In the remaining 14 cases, not confined to bed, differences in the systolic pressure of more than 5 mm. were found in 6. All six are cases of bilateral disease; tubercle bacilli have been found in all their sputa. The differences amounted, in the male patients, to 7, 8, and 13 mm. respectively; in the female patients to 14, 8, and 10 mm.

I am convinced that the differences cannot be due to the constriction of the armlet. If they were so due, the same relationship ought invariably to subsist between the reading taken from the first and that taken from the second arm. No such relationship has been found.

At present I refrain from suggesting an explanation, either of the phenomenon itself, or of the latter's clinical significance. It may nevertheless be stated, as far as the observations made up to the present time enable an opinion to be formed, that the systolic pressure in the arm appears to be lower, as a general rule, upon the diseased side in a unilateral, upon the most diseased or most active side in a bilateral, lesion. Further investigations are in active progress.

This possible source of fallacy in estimating the blood pressure in cases of pulmonary tuberculosis is too obvious to need further emphasis.

I am greatly indebted to Dr. Kelynack for his kind permission to publish these preliminary observations, and to Dr. Kinton, Medical Superintendent, for his encouragement and assistance.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

PREVENTION OF INFLUENZA IN NAVAL AMBULANCE TRAINS.

In view of the many and varied suggestions put forward for the prevention of influenza, the following notes of the means taken to prevent infection in the case of the crews of four naval ambulance trains which were used to convey a number of cases of influenza in an acute stage on four different occasions, may be of interest:

On June 29th Naval Ambulance Train No. 1 proceeded to Dover from Chatham to entrain 104 cases of influenza for transport to the Royal Naval Hospital, Chatham. The train was at Dover for four hours and seven minutes, during which time the cases were collected from various ships, etc., and brought on board. The train left Dover at 12.30 p.m. and reached Gillingham for Royal Naval Hospital, Chatham, at 1.51 p.m. Some of the crew of this train were in contact with bad cases of influenza for nearly five hours. The crew of the train consists of 37 sick berth and sick berth reserve ratings and two medical officers, and all were given quinine bisulphate gr. 5, and used a gargle of eusol. All bedding was sterilized and the train was washed down inside with a weak solution of izal after the run. No case of influenza developed amongst the crew or officers of this train.

On July 10th Naval Ambulance Train No. 3 proceeded to Dover from Chatham to entrain 140 cases of influenza. This train arrived at Dover 2.23 p.m., left again at 5.20 p.m., and reached Gillingham at 6.47 p.m. Cases from various sources were being taken on board during the whole time the train lay at Dover. Rather less than half the cases would be described as very severe, with high temperature, etc. As in Naval Ambulance Train No. 1, the crew consisted of 37 sick berth and sick berth reserve ratings and two medical officers, and all were given quinine bisulphate gr. 5, and gargled with a weak solution of carbolic acid. Influenza did not attack any man or officer employed on this occasion.

On October 9th R.N. Ambulance Train No. 2 was dispatched to Gosport to convey 42 lascars, all of whom had a severe form of influenza, complicated in 6 cases with bronchopneumonia. The cases were entrained between 11.5 a.m. and 12.25 p.m., when the train left Gosport for Greenwich. At Greenwich the 42 cases of influenza were detrained between 4 and 4.30 p.m. In this train all the crew and the medical officers took quinine bisulphate gr. 5, and they also gargled with a solution of potassium chlorate and carbolic acid. The train was disinfected with a solution of izal when it returned to Chatham. In this train, as in the other two, no case of influenza occurred in any officer or rating.

On October 31st Naval Ambulance Train No. 5 made a journey from Edinburgh to Stobhill via Queensferry and took up and carried a total of 108 cases of influenza. Most of the cases of influenza were on board the train for about four hours, but some were as long as six. In this case the officers and crew took quinine gr. 5 and gargled with a solution of potassium permanganate 1 in 5,000. The inside of the train was afterwards sprayed with izal and then washed down with carbolicene. No case of influenza occurred in the personnel of this train after this journey.

In the naval ambulance trains officers and men live continually on board. In all these four instances 39 healthy individuals were in close contact for several hours with a larger number of actively infective cases of influenza, and certain precautions were taken in each case, and not one of the 39 became infected with the disease. Quinine has always been considered by many as a prophylactic in influenza, and, combined with gargling of the fauces, certainly appears to have been effective in the four instances cited. Doubtless the disinfection of the trains with antiseptic solutions also tended to lessen the risk of infection.

Spraying of the nasopharynx or washing out the posterior nares with some mild antiseptic would doubtless be additional safeguards, but these measures are not very easily carried out, and in view of the immunity of the 156 persons mentioned above who used antiseptic gargles they are apparently not absolutely necessary.

K. H. Jones, M.B., Surgeon Commander R.N.,
Naval Medical Transport Officer, Chatham.

FILARIASIS AMONGST AUSTRALIAN TROOPS.

In the article on filariasis amongst Australian troops, Captain Rimmer, R.A.M.C. (October 12th, p. 405), makes note of four cases amongst Queenslanders occurring at Havre. As I was born, bred, and practised in Queensland, some points which have come to my knowledge may be of interest to Captain Rimmer.

In Queensland generally, and particularly in the north, filariasis is extremely common. As a record of its frequency I may quote the instance of a pregnant woman with mastitis in whose blood the filarial embryos were found in great numbers. The inmates of that household numbered eight, and merely for the sake of interest my father and self examined the blood of these people, and in six out of the eight embryos were found without any trouble. The remaining two gave a negative result.

Filariasis, with its sequelae, is one of the most prevalent of Queensland diseases, and is one of those conditions which has always to be excluded in making a diagnosis. The percentage of the inhabitants who, although they have the nematode in their blood, show no outward or visible sign of their condition must be astounding. Oftentimes have we examined patients who have come to the consulting room for advice as to other diseases and found filarial embryos in the blood.

In these circumstances it can hardly be wondered that a number of Queensland soldiers of the A.I.F., even though they have been away from their own country for some length of time, are subject to acute exacerbations of filariasis.

The amount of literature on filaria in Queensland is fairly extensive; a great deal of it is to be found in past numbers of the *Australian Medical Journal*.

A. T. H. Nisbet, Captain A.A.M.C.

It might be of interest to state that microfilaria were found in 10 per cent. of the patients admitted to the Brisbane General Hospital. These statistics were compiled some few years ago from patients admitted to hospital suffering from various complaints. That hospital receives patients from all over Queensland, but more especially from the southern part, from Bundaberg south to the New South Wales border. From the figures the occurrence of filariasis amongst Queensland troops is probably about 10 per cent. Filariasis is practically never heard of in New South Wales, Victoria, and South Australia.

France. A. M. Lilley, Captain A.A.M.C.

INTESTINAL OBSTRUCTION AND APPENDICITIS.

It is essential in cases of obstruction of the bowels to ask, "Have you ever had appendicitis?" and to remember that, irrespective of the time, weeks or years, which may have intervened between an attack of this malady and the onset of obstruction, a three-inch exploratory incision should be made in the right semilunar line low enough just to expose the region of ileo-caecal valve, as the obstruction—usually a kink with dense adhesions—will invariably be found in the last few inches of the ileum. Personal experience warrants the conclusion that the stereotyped textbook central incision in such cases is attended with disastrous results, as in the search for the lesion the distended paralysed intestines are needlessly exposed and handled, with consequent shock. The vital factors in the procedure are to get directly to the spot, avoid deadly protrusion of bowels, straighten out the kink, and secure one end of a large drainage tube in the site of adhesions, and then rapidly close rest of parietal wound with a few strong silkworm-gut sutures. With a funnel and long tube a rectal injection of a half-bottle of champagne

should be given, and the patient put quickly back to a warm bed. Six hours later it is advisable to give an injection of pituitary extract, and follow this within one hour by a 6 oz. glycerin and water enema.

JOHN O'CONOR, M.A., M.D., T.C.D.,
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LOCAL APPLICATION OF GLUCOSE.

I WAS interested to read in the JOURNAL of June 15th the article by Mr. T. H. C. Benians, F.R.C.S., on the local application of glucose in the treatment of certain superficial bacterial infections. For some years I have been using glucose, 40 per cent. solution, as a surface dressing for ulcers, with extremely gratifying results. The effect of a solution of zinc sulphate (2 per cent.) and glucose (40 per cent.) in promoting rapid granulation is much more striking than when lotio rubra alone is used. For the last eighteen months now I have used glucose (40 per cent.) instead of paraffin in the formula for bipp, with beneficial result; it is equally efficacious as an antiseptic in primary suture of infected wounds, and has the advantage that the wound does not gape open on removal of stitches, as one sees not infrequently happen where bipp has been used.

Mesopotamia. F. MCG. LOUGHNANE, F.R.C.S.

VARICELLA AND HERPES.

I HAVE always been sceptical in regard to the suggested relation between herpes zoster and varicella, but the following facts have shaken my belief.

The Royal Liverpool Country Hospital for Children has one closed indoor ward, the rest of the hospital wards being open air. In this closed ward a child developed well marked herpes zoster on October 20th; this ran the ordinary course, and on November 5th four cases of chicken-pox were found in this ward, and on November 6th one other appeared. No new cases were admitted between October 12th and 27th, except one who had had chicken-pox three months previously. There was no case in any other ward, and no cases have appeared amongst the staff. No visitors have been admitted to the hospital since October 12th, owing to the influenza epidemic; and no infection could thus have been incurred from outside.

Neston, Cheshire. GEORGE GUNN, M.D., F.R.C.S.E.

Reports of Societies.

DISCUSSION ON INFLUENZA.

A MEETING of the Fellows of the Royal Society of Medicine was held on November 13th, the President, Sir HUMPHRY ROLLESTON, in the chair, when a discussion on influenza was opened from the epidemiological side by Sir ARTHUR NEWSHOLME (chief medical officer to the Local Government Board), who maintained that influenza during this year had followed a course never previously experienced. Until towards the end of June the London curve showed scant mortality from it, the number of weekly deaths between the eighteenth and twenty-fifth weeks varying from five to ten. There is evidence that prior to this influenza had been fairly widely prevalent, as it could not fail to be, inasmuch as during the spring of this year influenza prevailed seriously among both the allied and enemy troops, and in Spain the epidemic of influenza had got well ahead in May. In July influenza was widely prevalent, and was causing excessive mortality not only in England, but also all over Europe, in the United States, in the great cities of India, and elsewhere. I have not found another instance of a widespread epidemic culminating in the summer months (that is, after June 23rd). The London curves, with this single exception, show that since 1881 epidemic peaks have always occurred in winter or spring. In the epidemic culminating in July streptococcal infection had been noticed by various observers; and in accounts of outbreaks of influenza in camps and in the civilian population in America during both 1917 and 1918 there was this same preponderant occurrence of haemolytic streptococci in the lesions and secretions. During the spring and throughout the summer of each year the usual endemic influenza probably was being almost constantly replenished by more virulent infection on a very large scale from overseas from both the American and European continents.

The further course of influenza this year in London showed that after an epidemic causing excessive deaths during some six weeks in July and August—weekly deaths from influenza, 10 (in the twenty-fifth week), 67, 218, 287, 192, 86, 38 (in the thirty-first week)—there was a decrease, the deaths in each of the following weeks being 21, 20, 12, 12, 12, 14, 9, 17, 17. In the forty-first week occurred a sudden increase of deaths to 80, and in following weeks the deaths numbered 371, 1,256, 2,458, and 2,433. This experience is different from that in any preceding year. The interval between the peak of the July epidemic of 1918 and of the smaller epidemic in 1916–17 was eighty weeks; the corresponding interval between the July and the October to November epidemic peaks in this year was sixteen weeks. This last-named interval is less than half of the interval elapsing between any two previous epidemic peaks of influenza in the metropolis, the nearest approach being thirty-five weeks' interval between the epidemic peaks of 1891 and of 1892. Sir A. Newsholme then referred to the request of the Secretary of the Medical Research Committee, noted in the BRITISH MEDICAL JOURNAL of August 10th, to bacteriologists in this country to send results of their observations during the epidemic in order that the results gained here might be collected, with a view to the organization of such co-ordinated work as might be found possible for the study of the secondary waves of infection that were to be expected. This statement, he feared, had been overlooked by many bacteriologists as it was by himself. In some journals an attempt had been made to show that public health authorities, central and local, did not take all possible steps in anticipating and mitigating the present major epidemic of influenza. Further, in an answer to a parliamentary question, the above cautious statement had been asserted to include also a forecast that (*a*) the secondary waves would occur in the autumn, and (*b*) that they would be more severe in character than the "primary wave of last spring." No such forecast as (*a*) was made, and it would have been a foolishly wild guess, inasmuch as the present "secondary wave" occurred more than twice as early as any previous "secondary wave" recorded in the history of the metropolis, and he knew of no other place for which equally minute and accurate statistics were available. That this was so was shown further by the statement in the monthly Medical Supplement compiled by the Medical Research Committee (October 1st, 1918), that "it is unfortunately only too certain that a second and more severe wave of influenza will spread over Europe in a few months." No special foresight was needed to anticipate that influenza, if it recurred in winter, would be a more serious disease than in July; but when this last statement, which was inconsistent with other published statements, was made, the "secondary wave" already was well on its way to an unexampled maximum, having caused during September serious mortality in South Africa, the United States, India, and some parts of Europe. If the forecast in the last quotation was to be verified, it would mean a further epidemic of influenza which had not yet materialized. Warnings of possible "secondary waves" in the presence of much endemic influenza or immediately after a superadded epidemic had declined, would be useful if a prophylactic were available (none except one in the early experimental stage had been suggested), or if by issuing advice the progress of an epidemic could be stayed. But at present we were unable to prevent the spread of influenza by communal means, and the experience of every family invaded by influenza demonstrated the difficulty, amounting almost to impossibility, of preventing the domestic spread of infection.

He had, however, in his official capacity prepared in July last a memorandum for public use, but, on the balance of considerations, its distribution was not considered expedient at that time. There were national circumstances in which the major duty was to "carry on," even when risk to health and life was involved. This duty had arisen as regards influenza among the belligerent forces, milder cases being treated in the lines; it had arisen among munition workers and others engaged in work of urgent national importance; and on a gigantic scale in connexion with the transport during 1918 of many

hundreds of thousands of troops to this country and to France from overseas. In each instance some lives would have been saved and spread of infection diminished if the known sick could have been isolated from the healthy, if rigid exclusion of known sick and drastic increase of floor space for each person could have been enforced in factories, work-places, barracks, and ships, and if overcrowding could have been prohibited; but it was necessary to "carry on," and wa needs justified incurring this risk of spreading infection, and the associated creation of a more virulent type of disease or of mixed diseases. Crowded trains, trams, and buses were doubtless prolific sources of infection; but the service could not immediately be increased, and meanwhile the vast army of workers must not be impeded by regulations as to overcrowding of vehicles in going to work and returning home, and he had had no hesitation in recommending the Local Government Board to advise police authorities to this effect. With regard to the preventability of influenza from the standpoint of possibilities in time of peace, the question was whether we were prepared to pay the heavy price in personal restrictions which its prevention—if even then possible—would imply until further means of prevention, so far undiscovered, become available.

The problem of preventing influenza was part of the wider problem of the prevention of the entire group of catarrhal diseases, with the added problem whether the occult causes of pandemicity of influenza could be discovered and their action averted. Medical science was unable to ensure us against acute nasopharyngeal catarrh or a "common cold." He did not overlook the occasional "hits" of autogenous inoculation, but the nearest approach to a general truth in regard to these colds was that life continuously in the open air secured relative immunity from attack. A practical difficulty in prevention was that the patient for several days might not fully recognize his condition, and it seemed likely that infection was chiefly spread during these earlier stages.

Numerous papers were then read, giving the results of investigations of the observers on the bacteriology of the epidemic. It was suggested that the *B. influenzae* was probably the causal organism, and that the pulmonary complications and septicaemia were due to secondary infection by the streptococcus or pneumococcus. After discussion of the morbid anatomy, the treatment—prophylactic and curative—came under review, and an account was given of vaccine treatment by Captain H. E. Whittingham, R.A.M.C., attached R.A.F., and Captain W. E. Carnegie Dickson, R.A.M.C.

Reviews.

PHARMACOLOGY AND THERAPEUTICS.

Professor Arthur Cushny, who recently delivered his first lecture from the chair of materia medica and therapeutics in the University of Edinburgh, has now published a seventh edition of his *Textbook of Pharmacology and Therapeutics*.[1] There is no need here again to describe the scope and arrangement of this well known work, which is a storehouse of precise information conveyed in the clearest language, useful alike to the senior medical student and to the practitioner. The issue of the ninth revision of the *United States Pharmacopoeia* made it necessary to review the descriptions of many of the drugs, and the author has taken the opportunity to revise the whole volume, and to bring its contents up to date. Since the publication of the last edition three years ago, pharmacological research has slowed down somewhat, and as a consequence changes in the text are rather fewer than usual. The war has, however, emphasized the importance of certain drugs, such as the disinfectants, which were falling into an undeserved oblivion, and recent progress in this direction is reviewed in the chapter on antiseptics and disinfectants. The work of various investigators, among whom Dr. Dakin must be mentioned, has shown that the principles underlying the antiseptic action of the hypochlorites, for example, have wide applications in practice. The amount of space given to the less important and less trustworthy drugs is further curtailed in the present edition, and many valueless preparations still to be found in pharmacopoeias are dismissed in a few words or ignored. A short section is devoted to the method of physiological assay by which the strength of a preparation is estimated from its effects on living animals or tissues; but, as Professor Cushny remarks, the details of this method are really insufficient without a complete practical course of work in the laboratory. The new edition will undoubtedly maintain the popularity of this excellent textbook.

[1] *A Textbook of Pharmacology and Therapeutics: or the Action of Drugs in Health and Disease.* By A. R. Cushny, M.A., M.D., LL.D., F.R.S. Seventh edition, thoroughly revised. London: J. and A. Churchill. 1918. (Med. 8vo, pp. 721; 71 figures. 18s.)

ASPECTS OF DEATH.

Man alone among animals knows he must die, and civilized man alone among the races of men. In the world of our modern existence, with all the discoveries of science and all the complexities of our social system and all the wonders of past history crowding thick upon us, we ponder far less than our forefathers on the inevitable debt of all flesh.

To the doctor, indeed, death is something more than the personal thing that it is to other men, for it is his lot to follow many as far as its gates. To him are full familiar the lineaments of the covering that is cast over all peoples, and the veil that is spread over all nations. He, at least, does not need to be reminded of death, for all aspects of it, varied as the processes of life itself, form the special province of his study.

In this study the medical man will be much helped by Dr. F. Parkes Weber's book, *Aspects of Death*, the third edition of which we gladly welcome.[2] With scholarly care and skill, and in a fine broad humane spirit, Dr. Weber guides us on from the classical conceptions of antiquity, through the sombre ideas of the ages of faith, past the doubting fame-greedy renaissance, to that more modern time when puzzled man turns to regard death as friend in its aspect of peace and rest. In the latest period a new aspect of death has emerged, or rather an old one has been revived. The mind, conscious of the reign of law everywhere and yet giddy with contemplation of the endless series of worlds, and of the countless numbers of generations that have passed and died since man first appeared upon the earth, gladly returns to something like the ancient stoic view. We seem to be parts of an infinite mechanism, and we become content and happy to regard ourselves and our lives as tiny factors in the grand scheme of universal solidarity.

In one sense at least death is the most creative thing there is. The knowledge that he must surely die has set man thinking, and thinking on this subject has done much to raise him. And in our own day, too, at least in normal times of peace, there is a correlative to the absolute certainty of death. It is the relative certainty of life. We may each of us form reasonable and approximate estimates of how long we have to live, and, apportioning the tasks we set ourselves to the time before us, so learn to number our days that we may get us a heart of wisdom, and thus find

> The secret of the word that saith
> Service is sweet, for all true life is death.

NOTES ON BOOKS.

A recent addition to the medical war manuals, authorized by the Secretary of War, and under the supervision of the Surgeon-General and the Council of National Defence, is a small book on *Laboratory Methods of the United States Army*.[3] It has been compiled by the Division of Infectious Diseases and Laboratories. It is a working handbook, containing formulae and technical methods for carrying out laboratory examinations. It has the further purpose of ensuring as far as possible uniformity of procedure in the army laboratories. The functions of the army laboratory are stated to consist chiefly in helping to safeguard the health of the troops, and the director of such a laboratory is reminded that it must combine the

[2] *Aspects of Death and Correlated Aspects of Life in Art, Epigram and Poetry.* By Frederick Parkes Weber, M.A., M.D., F.R.C.P., F.S.A. Third edition, revised and much enlarged. London: T. Fisher Unwin, Ltd., and B. Quaritch, Ltd. 1918. (Demy 8vo, pp. xi + 784; 145 figures. 30s. net.)

[3] *Laboratory Methods of the United States Army.* Philadelphia and New York: Lea and Febiger. 1918. (4½ by 5¾. Pp. 256, illustrated. 1.50 dols.)

functions of a health department laboratory with those of the diagnostic laboratory of a hospital. There is a long section on the sanitary examination of water and sewage, which contains a description of the various methods of sewage disposal. The book is a model of condensation, and is published in a very convenient portable form.

Mr. F. W. Wile has written a small book, *Explaining the Britisher*,[4] for American soldiers and sailors. Malicious stories were spread in America to the effect that Great Britain was leaving other nations to fight for it and not doing its share. There was no systematic official contradiction of these stories, perhaps because we looked on them as too absurd to be believed. Mr. Wile, however, knows that many of his countrymen did believe them, and he has here told the facts in a few brief, racy chapters. But the work will interest and amuse the Britisher. Mr. Wile is the fay who gives us the gift of seeing ourselves as others see us. The book is as friendly and good humoured as heart can desire; but, in spite of the many years he has spent among us, the author seems only to have realized what oddities we are when he began to collect his thoughts to write this book. He knows, for instance, that cricket is a training in character, but he can understand how a game set down to last three days may puzzle men bred on baseball. Also he thinks it necessary to set down that a British boy does not wish to be kissed by his parents when they visit him at school.

[4] London: Heinemann. Autumn, 1918. Price 2s. 6d. net.

ROYAL MEDICAL BENEVOLENT FUND.

At the last meeting of the Committee thirty cases were considered, and £249 15s. voted to twenty-four of the applicants. The following is a summary of some of the cases relieved:

Widow, aged 47, of L.R.C.P. and S.Edin., an annuitant of the fund who died in 1916. Applicant left entirely without means, and finds it difficult to obtain suitable employment. Relieved three times, £18. Voted £12 in twelve instalments.

M.R.C.S.Eng., aged 49, married. Suffering from disseminated sclerosis. Has no income beyond 10s. a week from friends and 5s. a week earned by his wife by making shell jewellery. Rent £6 a year. One son, aged 11, a foundation scholar at Epsom. Relieved twice, £44. Voted £26 in twelve instalments.

Widow, aged 43, of L.R.C.P. and S.Edin. who died in 1912. Applicant obtained a living by keeping a sweet shop, but owing to the war had to give it up. Now earns 10s. a week by sewing. Has three children aged 13 to 18. The eldest in the army, from whom she receives 3s. 6d. a week, and a daughter aged 16, who earns 12s. a week. Recommended by the Edinburgh branch of the Guild. Relieved twice, £25. Voted £15, in three instalments.

Daughter, aged 66, of L.F.P.S.Glasg. who died in 1863. Applicant has two pensions bringing in £40 a year, and has two unfurnished rooms rent free. Owing to the high cost of living unable to manage. Relieved five times, £25. Voted £5.

Widow, aged 55, of M.B.Aberd., who died in 1912. Owing to ill health unable to work. Sister-in-law allows 10s. a week. Rent 5s. a week. Relieved three times, £34. Voted £12 in twelve instalments.

Widow, aged 37, of L.R.C.P.Edin. who died in 1916. Applicant was left with very limited means with four children now aged 4 to 12 years. Tries to supplement her income by taking in boarders. Relieved twice, £27. Voted £15 in twelve instalments.

Widow, aged 81, of M.D.Lond. who died in 1895. Suffers from chronic rheumatism. Total income £44 a year. Relieved ten times, £65. Voted £10 in two instalments.

Widow, aged 55, of M.D.Edin. who died in 1896. Was left with one daughter, entirely unprovided for. Has recently fractured her leg, which has prevented her from working. Receives a little help from daughter. Relieved four times, £48. Voted £12 in twelve instalments.

Subscriptions may be sent to the Acting Honorary Treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W.1.

The Royal Medical Benevolent Fund Guild is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted is that suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.1.

On the initiative of Dr. Luigi Veratti, assessor of the Milan department of health and sanitation, a section has been instituted in the Bureau of Hygiene of that city for a public service of gratuitous and voluntary antityphoid vaccination.

MOTOR NOTES FOR MEDICAL MEN.

By H. MASSAC BUIST.

The Situation Arising from the Cessation of Hostilities.

The conclusion of the fighting pending the fulfilment of the conditions of the armistice has been productive of an immediate effect on the motor situation in that the radius of action of each licensed user of petrol has been extended to thirty miles, without, however, any increase of ration. The present licence holders are, nevertheless, already assured that applications for further licences for greater quantities of petrol will be favourably considered. Medical men come first in this category. Nor is there any reason to anticipate that inadequate amounts will be granted them in face of the abnormal extent to which their numbers have been depleted through war service, and of the health situation of the country making equally abnormal demands on members of the profession at home.

Why We Shall Never Return to Unrestricted Car Lighting.

This change comes about at a season of the year when it is essential for the average medical man to use his car to a very considerable extent during hours of darkness. One of the earliest announcements was that it was not possible to allow the lighting restrictions to be removed altogether—first, in coastal regions, because of the requests of the naval authorities, and secondly, because there are few conditions that lead to worse confusion than the partial lighting of a town or village where passing vehicles use unveiled headlights on the pre-war scale.

Those, however, who conclude from these announcements that it is only a matter of weeks before motorists throughout the length and breadth of the land will have leave to run their cars without any restriction are entirely in error. No official announcement has been made on the subject at the moment of going to press, but I have reason to forecast that never will utterly unrestricted lighting of motor vehicles be permitted in these islands. Few, if any, medical men will have any objection to this, since as a class they have not utilized the more extravagant and dazzling schemes which were being developed and employed before the war by certain classes of motorists. In those days every effort was being made to devise more and yet more powerful headlights, in some cases quite irrespective of their effect on other road users.

What we shall have will be regulations designed to furnish all the lighting necessary for quite safe and convenient driving on the part of individual motorists, but so limited that other road users, whether pedestrians, equestrians, or drivers of any sort of vehicle, will not be dazzled by the effect of such lights. The Home Office has all the necessary information and data from experiments. It is extremely unlikely that such limitations as it will be necessary to impose on the future lighting of cars will cause any alteration in the lights used by medical men, for they have not used dazzling or extremely powerful lighting schemes; they will, on the contrary, find that motoring at night will be considerably more agreeable because they will not encounter users of dazzling headlights, who, as a class, are not altogether free from scorching tendencies.

The Critical Period on the Open Road.

Once the release of petrol becomes general, as must happen early next year, large numbers of motorists will take the road again. Most of them will have had experience of motoring under war conditions, or in the air, and many will have no conception of desirable or undesirable driving according to our pre-war standards. It should be noted also that experience proves it dangerous to allow men and women who have suffered nervous overstrain to take charge of vehicles. The least excitement causes them to lose all sense of what they are about, and to take quite unnecessary risks while their minds are temporarily agitated.

Again, we must not overlook the fact that vast numbers of drivers have been accustomed to the French rule of the road; consequently, when an emergency arises, and the only way out is to do subconsciously the one right thing

among ninety-nine wrong ones, in numbers of cases undoubtedly the mental process will be to behave as though the individual driver were still on French roads. In other words, we must be fully prepared for a critical time in regard to motor driving in the first half of 1919.

PUTTING CARS INTO GOOD CONDITION.

Fortunately a large proportion of medical men have been using their cars throughout the period of the war. Consequently they are more or less in good condition as regards accessories, such as, notably, tyres; but medical men who have been abroad may, when they return, discover that tyres laid by for a matter of years become practically worthless, not from wear, but from a sort of process of disintegration.

The motor agents expect that the cessation of hostilities will mean not only a large business in the selling of new cars when such become available, but an even larger business in the matter of repairs, and, above all, in the replenishment of tyres; yet to-day it is not possible to secure a permit to buy a Dunlop tyre, though apparently any other make may be purchased. Obviously, however, it can be only a brief interval before Dunlop tyres shall become available to the public. The warning for the medical man is that if he is likely to need any particular make of tyre in the near future, and can come across examples of it locally, assuredly he should secure them to the extent of ensuring his ability to carry on pending the resumption of normal motoring conditions, which can only be achieved gradually.

There can be no sudden and absolute regrant of motoring facilities. The movements now taking place in carrying out the armistice conditions are equivalent to a vast rush forward by our armies. Consequently, fuel and tyre needs for transport at the front, far from being less by reason of the sudden stoppage of actual fighting, are, and will be, temporarily greater. The flying services, too, are putting in plenty of hours in the air, to the great consumption of petrol. That, however, will stop once Marshal Foch shall be in a position to report that the conditions of the armistice have been carried out. Then must begin a rapid and drastic economy of expenditure on motoring at the charges of the taxpayer.

THE SITUATION IN REGARD TO MAKING AND MARKETING NEW CARS.

As long as work remains "controlled" the Government has to share any losses incurred. The Government has fixed the price of wages for six months ahead, but itself does not want to share any loss resulting therefrom. Therefore, we find already that the name of the Ministry of Munitions, for example, is about to be altered to the Peace Ministry of Supply, thereby avoiding a sure loss and involving much elsewhere. At the moment the motor factories of the country do not know exactly where they stand. Some makers have their programmes fixed, but confusion arises from the cancellation of orders, not merely for new munitions, but also for spares. There appears to be no uniformity in the nature of contracts that have been made. What has to be adjusted is the entire proposition of who is responsible for what, and how much of what is under order must be completed, because preliminary processes in connexion with it have gone too far. For example, there are the partly machined castings, crankshafts, and so forth. These cannot be wasted. Thus, there is about four months' grace to finish aircraft engines in hand. Certainly the check was administered with admirable promptitude. If we begin with producers of raw materials, a minimum of time is being lost by them, their situation being much easier than that of the makers of finished products, such as motor vehicles. Nevertheless, some firms have post-war car models on the road already; certain actually started building chassis on the day work was resumed after the three days' holiday granted in celebration of the signing of the armistice with Germany.

The publication of details of post-war models that are really designs, and are not pre-war models in disguise, will be quite gradual. Some firms have what is styled their publicity matter already, but those are not necessarily the enterprises which have their vehicles nearest completion. Others are getting their car production programmes well in hand, but they have not yet found time to issue descriptions of them. In this connexion it must be had in mind that quite a number of firms had produced, printed, and stowed away post-war catalogues six and more months ago.

CAR SCHEMES MORE DEFINITE THAN CAR PRICES.

As to the choice of motor vehicles to be put on the market here, evidently we may look for car schemes to be much more plentiful than definite statements as to car prices. Some firms are taking orders for vehicles at certain prices, *or less*. Scarcely any firm is taking orders for a vehicle at an absolutely set price. The reason is obvious. No firm is yet completely out of Government control. Moreover, when each is released, it will be only on the terms that it has to pay certain prices for wages, which represent about one-third of the cost of producing a car.

THE DESIGN OF NEW 1919 CARS.

Neither would-be car owners, nor members of the industry or trade, are wishful that motor shows should be held this year. More than all the cars that can be produced in the next nine months from the design of 1916, as distinct from those of 1914, will be sold without any such effort, which, on the contrary, would tend merely to hold back the placing of definite orders, and lead to further delay. Motor shows are not to be looked for until the autumn of 1919, though competitions, of course, will have to be conducted next summer to try still newer ideas.

Briefly, in the cars to be placed on the market in the course of the next month or two, it will be found that suspension, steering, accommodation, more effective incorporation of accessory details in the original designs of the vehicle, and certain American influences making for cheaper production without prejudice to the quality of the accommodation and riding provided, have been had in mind. Not all the schemes for incorporating the accessories in a motor vehicle can be commended. In one of them, for example, you shall find the accumulators in connexion with the mechanical engine starting and lighting gear accommodated alongside the silencer—certainly an undesirable practice. One of our largest firms will be found to have made a notable departure in frame construction with a view to providing a really inflexible base for a car body, thereby solving the problem of creaking with wear. These and such like matters, however, are best dealt with at a later date.

TRENCH FEVER.

THE Commission of the Medical Research Committee appointed by the American Red Cross has just issued its report on Trench Fever,* which forms one of the most valuable contributions to war medicine hitherto published. The report has been edited by Major R. P. Strong, who is in charge of the Subdivision of Infectious Diseases, A.E.F., and he, as well as all those associated with him, may be most heartily congratulated on the result.

It is a matter of general knowledge that trench fever has caused an immense amount of wastage in the British and allied armies, but, except by those actually dealing with cases in the mass, the importance of the problem from the point of view of man power has not been fully realized. The quotations from previous writings given in the report, such as that "it was at one time computed to form 40 per cent. of evacuations, and 60 per cent. of all cases of sickness in a certain formation," and that "its morbidity could only be equalled by such plagues as typhus, typhoid, and malaria," give some idea of its prevalence.

Specific Nature of Trench Fever.

Since 1915 much discussion has centred round the problem of the specificity of trench fever. Its first appearance on the Western front was soon followed, as movements of troops to other centres took place, by its being noted in Salonica. Mesopotamia and Italy and the German armies were also affected. Resemblances to dengue, "Colombo" fever, the low fevers prevalent in

* *Trench Fever.* Report of the Commission, Medical Research Committee, American Red Cross. Oxford: University Press. 1918. (Pp. 440, with plates, charts, and tables.)

Flanders in previous campaigns, and to other epidemics were noticed, but the differential diagnosis as regards these diseases was soon established. The great clinical problem remaining to be determined was whether trench fever was merely a modified form of typhoid or paratyphoid, a view stoutly maintained by some up to the last. The first work of the Commission was therefore to solve this question, and the masterly exclusion of the enteric group is set out in convincing detail. To summarize the results it may be stated: (1) That no bacterial growth was obtained in 200 examinations of blood, stools, or urine, whereas in clinical cases of infection with the enteric group at least 20 per cent. of such examinations are positive. (2) That no bacterial substances affecting the growth of the organisms of the group were ever obtained from the blood of trench-fever patients. (3) That the agglutination titre, determined by Dreyer's method, never showed any constant or characteristic fluctuation in vaccinated men who developed trench fever. The conclusion is therefore drawn that trench fever is not an enteric group infection modified by inoculation. All other bacterial investigations also proved negative, and the final result arrived at was that trench fever is a specific infection, due to an unknown virus. Thus was clinical opinion strikingly confirmed bacteriologically, and a new disease definitely isolated from the mass of febrile affections.

Clinical Description.

Many published accounts have described the general symptomatology. After an incubation period of from fifteen to thirty days, during which prodromata are not frequent, the disease is ushered in with sudden onset—headache, dizziness, pains in the back and legs, lateral nystagmus, injected conjunctivae ("pink-eye"), enlarged spleen, an erythematous or papular rash on the trunk, and sharp fever. Subsequently various types develop. In the short form the whole illness is over in ten days. In the long or relapsing form, which predominates, characteristic relapses of fever, with a return of symptoms, may recur for several weeks. Less frequently the initial fever may be prolonged for weeks. Even after recovery from any one of these types, liability to recrudescence at remote periods up to eighteen months may exist. That all these varying types are only different manifestations of the same disease was shown by the Commission, for in experimental transmission the type appearing in the inoculated case did not necessarily conform to that of the original patient.

The Question of Blood Infection.

Having determined the specific nature of trench fever, the question of the infectious properties of the blood was next approached. This research was based on the historic work of McNee, Brunt, and Renshaw, who, in 1915, demonstrated on men that the disease could be conveyed by the injection of the whole blood, but not of the serum, and concluded that trench fever was a definite entity, the virus being contained within the red corpuscles. These experiments the Commission repeated on a large scale, and arrived at somewhat similar conclusions. Thirty-four men received blood injections from proved cases, of whom twenty-three contracted the disease within periods varying from five to twenty days. The blood was found to be most infective in the first two days of the disease and more infective in the first attack than in subsequent relapses. It was further determined that either whole blood or plasma could convey the disease, that serum and filtered plasma were not infective, and that washed corpuscles were at times infective, at others not. From this it was concluded that the virus is extra-corpuscular, existing in the plasma, and that at times it is carried down in the centrifuge with the corpuscles. Further, it was found that the urine of patients contains the virus, as also the excreta of infected lice. Experiments on filtration with these infected vehicles indicated that the virus is a filter passer. The virus resists heat, but is destroyed by exposure to a moist temperature of 70° C. for thirty minutes. The summarized result of these experiments is that trench fever is caused by a specific virus, which has high resistance, is filterable, and is contained in the plasma, the urine, and occasionally the saliva, of infected patients.

Methods of Transmission.

The final problem, and that the essential one from the military point of view, was the determination of how the disease spread. For three years speculation had been rife in the British armies, the possible rôle of mosquitos, rats, mice, etc., being considered. Gradually all agencies except that of the omnipresent louse had been eliminated, and clinical judgement had more and more leaned to the theory that here was the criminal. In fact, before the Commission began its work this view had been adopted as a working one, and strenuous efforts were being made to combat the widespread infestation from which the troops suffered. The final proof of the guilt of the louse adduced by the Commission came as a timely support to the conviction already arrived at on circumstantial evidence. Space prevents any detailed description of the methods employed, but the chapters devoted to this part of the work are fascinating reading. It is sufficient to state that 70 per cent. of the volunteers who were exposed to the bites of infected lice developed the disease, and, further, that the excreta of such lice when rubbed into an abraded skin area were also capable of conveying the virus. The general conclusion reached by the Commission was "that the disease is transmitted naturally by the louse *Pediculus humanus*, Linn., var. *corporis*, and that this is the important and common means of transmission. That the louse may transmit the disease by its bite alone, the usual method of infection, or the disease may be produced artificially by scarifying the skin, and rubbing in a small amount of the infected louse excrement."

The work of the Commission was thus brought to a triumphant conclusion, fortunately just before the commencement of the March offensive. It is a remarkable testimony to the value of "team work." It goes far to solve the problem which has proved the largest one in the medicine of the war. Carried out in a British hospital, based on the clinical and experimental observations of hundreds of British medical officers, it has placed on a scientific basis of proof the opinions which were largely held as a result of these observations, and has added another item to the debt we owe to our American colleagues. Whilst acknowledging that debt, let it not be forgotten that it was owing to the spirit of the eighty-two volunteers from the American army who willingly offered themselves as subjects for experiment, knowing the risks they ran, that the results obtained were possible.

Finally, most important of all, the means of prevention are placed in our hands, and the "battle cry" of one Corps in the army—"kill that louse"—may well be generally adopted as indicating a universal method of attacking the disease which has caused such great wastage in the man power of our armies.

We venture to think that this report, issued by the Clarendon Press in admirable style, and containing full protocols of all experiments with a wealth of detail, will become a classic on the subject of trench fever, and to hope that it may be as widely read as it deserves.

A French Orthopaedic Society has recently been founded. The President is M. Kermisson; the Vice-Presidents MM. Broca and Denucé. The questions discussed at the first annual meeting, held in October at the same time as that of the Société de Chirurgie, were amputations in relation to prosthesis, spondylitis in war time, and the treatment of pseudo-arthroses.

THROUGHOUT the past four years the Lebanon Hospital for Mental Diseases, near Beyrout, Syria, has been allowed by the Turks to carry on its work under the charge of the British Director, Dr. Watson Smith. It was necessary, however, for the safety of the hospital that no publicity should be given to it during this time, and in consequence it has been difficult to keep up the funds needed for its maintenance. Nevertheless, this has been done through the kind offices of America. At one time the Turkish authorities wished to commandeer the institution for military purposes, but, learning of the good work it was doing amongst people of all races and creeds, they refrained; and at a time when food was very difficult to get, Djemal Pasha presented 100 sacks of wheat. The hospital is the only one of its kind in the whole country. The committee now appeals from the central office, 35, Queen Victoria Street, London, E.C.4, for financial help to bring the hospital up to date, and so enable it to take its part in the coming reconstruction of Syria.

British Medical Journal.

SATURDAY, NOVEMBER 23RD, 1918.

PHYSIOLOGY AND MEDICINE.

THE report of the Medical Research Committee for the year ending September 30th, 1918,[1] contains within its modest bulk a record of an immense amount of valuable work, yet the Committee proclaims that it is fully aware of the important fields of medical study which it has been obliged for the present to leave almost uncultivated. The field is infinite, and it is well said that the best achievements of research in any given year must seem only to gain upon its margin at a few points. Urgently do we need better understanding and control of such widespread diseases as tuberculosis, pneumonia, measles, and influenza with its sequels, and further studies of the healthy body, of the early beginnings of organic disorder, and of the best means for maintaining individual, industrial, and social health. An instance of the way in which the Committee can turn its forces to some subject of pressing importance is to be found in a postscript, stating how the researches into influenza and its complications already instituted have recently been extended and brought within an organized scheme, which has been co-ordinated with the work being done in the same direction for the army and navy. The Committee's bacteriological department has been able to give assistance to the War Office in the preparation of vaccines for the protection of troops and in the classification of types of *B. influenzae* isolated at different centres. The present pandemic is exhibiting features closely similar to those of its predecessors which have visited Europe in cycles. Knowledge that the mode of communication is by short range aërial convection affords a sound basis for precautionary measures, but special efforts are being made to determine the best methods of prevention and treatment of the dangerous complications of the disease, especially the pneumonias of various kinds to which deaths are almost wholly due. Selected observers are also making experimental observations aiming at the discovery of the nature of the infective organism or virus itself by which the primary influenzal attack is caused.

The justification which the Committee offers for turning its attention to immediate military necessities seems unnecessary. All national effort has been diverted from its normal channels, and on no side has this been more inevitable than in the application of medical science to the prevention of the diseases and the diminution of the sufferings of war, but one result has been to turn competent investigators away from many of the subjects which would otherwise have had the earliest claims for investigation. The obligation is now nearly fulfilled, and attention can be turned to the mitigation of that volume of avoidable suffering and economic loss from disease in civilian life during peace which is measurable in terms of at least the same order of magnitude as that of the casualties and diseases of war. There are, however, few, if any, real boundaries between the fields of inquiry for civilian or military purposes, and much of the work done under the stimulus of the unusual necessities of war has produced results which are of permanent value for all future efforts to prevent disease and wrong living. The Committee looks forward to utilizing in the future period of peace the services of very many who have worked for it, and not least those of the younger workers.

In the introduction to the report there are some observations on the relation of physiology to clinical medicine which are of wide and permanent interest. Physiology, the science of the healthy living organism and of its reactions to disturbance, has been more and more brought into practical service by the special needs revealed by the war. The Committee expresses the opinion that in England the work of the physiologist has been too much divorced from practical medicine, so that the British school of physiology, which by the admission of other nations stands second perhaps to none, has not been brought into due relation with the work of the physician and surgeon. This misfortune is attributed to defects in our system of education, which have allowed the physiologist to remain too much in academic retreat, and the clinician too far from the laboratory and its methods. We are inclined to think that the fault is due not so much to defects in the system of education as in the attitude of the professed physiologist to practical affairs. He used to live aloof, and took no trouble to conceal his contempt for the struggles of the clinician. But the stress of war on the individual machinery of man has made the physiologist and his methods indispensable; his response, ready and whole-hearted, has reflected honour on his patriotism, and has been attended with a degree of success which we hope may convince him that his former attitude was mistaken, and that he, too, has his part to play in the service of man. The work done has been various. "New studies have been needed of the changes in blood pressure and blood volume and in the qualities of the blood itself, new inquiries into the finer vessels of blood circulation and their relation to the nervous and other systems, and new analyses of the chemical mechanisms of the body and of the modes by which want of oxygen is met by adaptation, or leads to final damage." In these and other ways physiology has itself gained permanently, while giving aid in solving pressing problems of the moment. All will agree in the hope expressed by the Committee that "the active co-operation which has been established in more than one direction between the physiologist and the medical or surgical clinician during this time of war may long endure and bring lasting benefit both to the general cause of medical research and, by inevitable reflection, to that of medical education."

[1] Fourth Annual Report of the Medical Research Committee, 1917-18. London: H.M. Stationery Office. 1918. 4d. net. (Cd. 8981.)

A.M.S. AND S.M.S.

Two pronouncements have recently been published on the advantages and the disadvantages of a whole-time centrally controlled graded state medical service, the one by Colonel G. T. K. Maurice, C.M.G., in *The Hospital*,[1] and the other by Major-General Sir Wilmot Herringham, in *St. Bartholomew's Hospital Journal*.[2]

Colonel Maurice, who has spent twenty-three years in the Royal Army Medical Corps, is so convinced of the excellence of its work for the army that he would apply the same system holus bolus to the civil population. He would have a D.G. with his staff in London, a D.M.S. in each large county or county borough, with head quarters in the chief town, and D.D.M.S.'s or A.D.M.S.'s in districts or small country

[1] November 9th and 16th. [2] November.

towns. In each district there would be a hospital at which the D.D.M.S. would live, and there would be a kind of presbytery for the medical officers serving under him. The county D.M.S. would be the chief administrative medical officer of the county, and as such would be responsible for the proper and efficient employment of the members of the state medical service in his county. It would be his duty to give advice on all matters concerning health to the county council; he would inspect districts, hospitals, pathological institutes, convalescent homes, and so forth, and report on them both to the county council and to the D.G. in London. Colonel Maurice thinks that there are not too many doctors to fit in to such a scheme. The young man entering it would rise by seniority, and selection according to merit. The inducements would be the prospect of "a pleasant life, interesting work, a reasonable reward for his work, a certainty in his old age, and a fair prospect for his wife and family if death should take him before the fullness of days comes to him." The scheme is worked out at great length, but this may serve as a general outline of the conception contained in it.

One story is good until another is told. Sir Wilmot Herringham, a physician in civil practice until he was called to serve on the staff of the Director-General Medical Services in France some four years ago, takes an entirely different view. He knows both sides, and has no hesitation in saying that though the R.A.M.C. "is the only possible system for any army, and has done its work in an admirable way, it is the worst for civil life that can well be conceived." He admits that the army system secures to the medical officers certain desirable objects—an easy provision of substitutes to take the duty of an absentee, distribution of officers in proportion to needs, and regular pay and holidays, and, if wished, study leave. The prospect of a pension is not mentioned, but it is an important consideration to most men.

On the opposite side of the account we are told that the army system does not insure against waste of time. "These unfortunates of the R.A.M.C. serve tables if ever men did. If you want to know how much time and how much paper a system can waste, from the highest to the lowest rank, go to the office of an army, or indeed, of any Government department." Nor does it, he adds, render a man more independent. He is not in the army dependent upon his patients, but he is far from independent of the public or of his superior officers. "I once was told by an officer, 'Of course a word from you might ruin me.' As far as I was concerned, that was quite untrue, but it might have been true if I had been a Regular, and it seems to me horrible that a man should think such a thing. An official system does, in fact, prevent independence and discourage originality, not by the wish of any one, but because where a man's prospects depend upon the opinion of his superiors—well, it cramps his style. And yet it does not relieve him from the competitive struggle. This is keen and anxious in the R.A.M.C. as it is elsewhere."

One of the drawbacks Sir Wilmot Herringham finds in the proposed system is concerned with promotion. In every Government service the leading fact is seniority. The men, he says, "are so uniform, and have so little opportunity of being otherwise, that selection is extremely difficult. It is equally difficult to get rid of an incompetent. When selection is exercised it invariably gives rise to dissatisfaction." Another drawback he foresees is the bad effect upon a man's efforts which is exercised by the possession of very moderate prospects, which he can hardly be deprived of, but can hardly hope to improve. A great deal of dull work must be done by the general practitioner, and what, it is asked, "will be the effect upon a man not naturally industrious (and how many of us are?) who, working out his attendances at an average of a few pence for each, thinks that he is paid too little, yet sees no prospect of getting more by working harder?" To turn the profession into a rigid organization, where the power of individual effort is reduced to a minimum, must, it is urged, have an injurious effect upon the general level of the profession.

Finally, as a practical man and a candidate for the representation of the University of London in Parliament, he turns to the political difficulties of putting so revolutionary a scheme into practice, and he concludes that the only grounds on which a Government would take it up would be a general desire for it on the part of the profession, and an obvious advantage to the public by improvement in practice. He thinks it would be resisted by the profession, and would not only not improve, but would greatly lower the standard of practice, and would therefore be to the disadvantage of the public.

The two articles seem to state the pros and cons fairly. Sir Wilmot Herringham has a stronger sense than Colonel Maurice of the objections the public affected might have to a state medical service modelled on the Army Medical Service, and we suspect that recent experience of military medical administration under the D.D.M.S.'s of Home Commands has not tended to diminish any prejudice in this respect which may previously have existed. We are aware that among the younger medical officers now serving temporarily in the R.A.M.C. are some prepared to welcome such a state medical service as Colonel Maurice outlines. We do not know what proportion of the whole they form; their opinions in any case are worthy of respect, but they have first of all to convert the profession to their way of thinking. The subject has been repeatedly discussed by the Representative Body of the British Medical Association at its annual meetings, and so far that body has not been convinced that such a scheme would be advantageous either to the profession or to the public. However this may be, we are bound to agree with Sir Wilmot Herringham that at the present time any such scheme does not seem to be within the range of practical politics, but we agree also that there is a very great probability of a considerable increase in the number of part-time appointments, and that this would not only be a public advantage, but would also, it may be hoped, provide some compensation to those who through military service have lost their practice, or lost several irrevocable years during which they might have started in civilian practice.

THE GENERAL ELECTION.

PARLIAMENT is to be dissolved on Monday next, the 25th instant, and it follows under Statute regulations that the nominations will take place on the ninth day afterwards, namely, on Wednesday, December 4th, and that pollings will be held throughout the United Kingdom simultaneously on the tenth day after that, namely, on Saturday, December 14th. The original scheme provided that votes should be counted on Saturday, December 21st, but a short amending Act passed last week provided that the interval between the polling and the counting of votes could be enlarged so as to give more time for the recording of votes through the post by soldiers and sailors who are abroad, and so the counting will be on Saturday, December 28th. The arrangements for absent voters have been fully set forth in the instructions issued by the Local

Government Board to returning officers. The addresses of officers of the Territorial Force and those of the rank and file of all the forces are supplied by the Record Office to the returning officers of each constituency, who send out the voting papers. It would have been better if the same provision had been made consistently throughout, but other officers in the army, including, of course, a large proportion of the medical men serving, have been left to communicate to the returning officers their addresses in cases where they are absent voters—that is, when voting by post. In a circular sent out by the Local Government Board on November 11th it was stated that up to that time comparatively few officers in the army had notified their addresses, but it was believed that when the election was announced notification of addresses would be received in considerable numbers. The returning officers were advised that where no address was thus furnished the service description might be regarded as the recorded address, and if the officer's unit and corps were thus available, the ballot paper could be sent to the army post office for transmission. If, however, the unit was not shown, it would not be possible for the army post office to make delivery. Thus it is of urgent importance that those who desire to exercise the franchise should communicate their addresses promptly. Several more or less formal orders have been issued by the Privy Council as to the regulations to govern university elections. By an order of October 23rd returning officers of universities are enabled to fix the day for the nomination. Under the Act it was laid down that it should not be necessary in the case of universities for absent voters' lists to be prepared, but the right to vote by proxy might be exercised by any person who would be entitled to exercise such right if his name were entered on an absent voters' list, so long as all other conditions enabling him to vote by proxy were fulfilled. As regards voters in France serving with the British army, elaborate provisions have been made for distribution of papers and collection of them through post offices which have been set up for the purpose. Even so, however, grave doubt exists, in view of the movement of so many troops to Germany, whether the scheme will serve. Those who have confidence in it refer to the success of the system which was employed for the voting by soldiers for the Canadian and Australian elections. It is pointed out, however, that the systems were different from our own, and that the Canadian and Australian troops were mostly stationary.

MEDICAL REPRESENTATION IN PARLIAMENT.

It will be remembered that a meeting of medical men was held at Steinway Hall on October 1st, under the chairmanship of Sir Henry Morris; a report of the proceedings was published in the JOURNAL of October 5th. As a result of that meeting a Medical Parliamentary Committee has been formed. Certain officers of the British Medical Association were invited to join it, but in deference to the views of the Council of the Association they have declined. We understand that the Committee has been at work, and by the courtesy of the Editor of the *Lancet* we are able to make some quotations from an article which will be published in that journal this week. The Committee, this article states, has "provided itself with the names of medical men "who are already willing to place themselves at the im- "mediate disposal of the Whips in the unforeseen event "that between now and December 14th any one of these "doctors may be adopted as an official candidate for a "seat. It is, of course, extremely unlikely that this contingency should occur, as in those localities where elections are being fought the contesting parties have long "ago chosen their champions. Moreover, it is easy to "see that the names which the Medical Parliamentary "Committee may be able to send in to the Whips must "constitute a short list. . . . The work done by the "Medical Parliamentary Committee must be considered "merely preliminary, although the slight chance of some "immediate accomplishment has been prepared for. . . . "The medical profession agrees that it requires a louder "and clearer parliamentary voice; it must also agree to "obtain that voice in accordance with prevailing customs. "No man will get into Parliament on his medical claims. "But from our point of view the ideal medical man in Par- "liament should not represent medicine only; he should "be the interpreter of medical thought and aims to his "fellow legislators. This he can easily be while assenting "to a general party creed, provided that in every word that "he utters, and in every idea that he supports, the pre- "dominant claims of national health are obvious. Such "a legislator can conform to party politics and can keep "his necessary pledges to his constituency and to his "political organization, while remaining faithful to ideals "outside and above such pledges; and his presence in "Parliament upon such terms might be a great destroyer "of the evil influence of party. . . . From a Medical Par- "liamentary Committee, such as could be formed if all "medical men would help in its promotion, the medical "advice would be of the highest worth. Now, to constitute "a Medical Parliamentary Committee of this order will "need the co-operation of all the medical profession, whose "powers should be set in action from as many directions "as possible. The Parliamentary Elections Committee of "the British Medical Association will, we trust, be willing "to join a movement whose main objectives must be "identical with their own, and which by the elasticity of "its constitution can enter into wide public relations while "retaining the essential medical spirit."

THE MEDICAL RESEARCH COMMITTEE.

UNDER the regulations for the Medical Research Fund Major Waldorf Astor, M.P., Dr. A. K. Chalmers (M.O.H. Glasgow), and Dr. George Murray, professor of medicine in the University of Manchester, retired last August. Major Astor was reappointed Chairman, and Dr. Henry Head, F.R.S., physician to the London Hospital and to the Royal Air Force Central Hospital, and Dr. Noël Paton, F.R.S., regius professor of physiology in the University of Glasgow, were appointed members of the Committee. It now consists, in addition to Major Astor (Chairman), Viscount Goschen (Treasurer), and Sir Walter Fletcher M.D., F.R.S. (Secretary), of Dr. Addison M.P., Mr. C. J. Bond of Leicester, Professor William Bulloch, F.R.S., Professor F. G. Hopkins, F.R.S., of Cambridge, Colonel Sir William Leishman, K.C.M.G., F.R.S., Dr. Henry Head, and Professor Noël Paton. Reference is made elsewhere (p. 579) to some of the chief points in the annual report. We may note in addition the statement that the Committee has acted jointly with various Government departments or other bodies, either in appointment or in nomination, with a view to meeting particular administrative needs demanding research work. The Committee has in fact a number of special committees, including those on the incidence of phthisis in relation to occupation; on surgical shock and allied conditions, of which Professor Bayliss has become chairman; on the standardization of pathological methods, of which Professor Adami, F.R.S., is chairman; on salvarsan; on chemical warfare medical investigations; on anaerobic bacteria and infections, of which Professor Bulloch is chairman; on accessory food factors ("vitamines"), of which Professor Hopkins is chairman; on air medical investigations, of which Dr. Head is chairman; and on dysentery, of which Sir William Leishman is chairman. There is also an industrial fatigue research board, appointed last June by the Department of Scientific and Industrial Research jointly with the Medical Research Committee, to consider and investigate the relations of the hours of labour and of other conditions of employment, including methods of work, to the production of

fatigue, having regard both to industrial efficiency and of the preservation of health, among the workers. Of this committee Professor Sherrington is chairman. In the introduction to the annual report reference is made to the cordial co-operation received from the Advisory Council of Scientific and Industrial Research, established in 1915. The field of research in every pure science, not less than that of inquiry in industrial science, lies so close at very many points to the fields of medical research, that no boundary line can be drawn. The Committee looks forward to the progressive development in this co-operation with the Department of Scientific and Industrial Research, and finds new hope for the increasing effective organization of research work in all directions. "This," it is said, "should be an organization not imposed in any sense from above, but one derived from and inspired by the efforts of individual workers in the different fields of science, where the free university and other institutions of the country are pursuing together the common aims of the advancement of knowledge and the good of the State." In this connexion it may be recalled that the Ministry of Health Bill provides that "the duties heretofore performed by the Medical Research Committee shall, after the commencement of this Act, be carried on by or under the direction of a committee of the Privy Council appointed by His Majesty for that purpose." This would place the Medical Research Committee in a position analogous to that of the Advisory Council of Scientific and Industrial Research. Before taking leave of the annual report of the Medical Research Committee we would venture to pay a small tribute to the eminent services of its secretary. The task of organizing the work of the Committee would in any circumstances have been one of no little difficulty. The outbreak of war before the schemes sketched out could be put into practice greatly increased the difficulty of organization and the responsibilities of the secretary. We venture to congratulate Sir Walter Fletcher on the large share he has had in organizing the victories of the Committee.

FARM AND INDUSTRIAL COLONIES FOR TUBERCULOSIS.

ALL the schemes hitherto devised or put in practice for the cure of tuberculosis are admittedly incomplete. Much has been achieved, but much more remains to be done, in order that the patient who has been relieved and educated in the sanatorium may be enabled to resume remunerative work under favourable conditions. Experts are now agreed that the institution of farm and industrial colonies will offer the best means to that end, but their establishment can only be accomplished if local and central authorities can be brought into agreement as to means, and if Insurance Committees will consent to alter their rules so that a tuberculous person who may be capable of light work should not lose the whole of his grant by undertaking it. A carefully considered scheme was laid before the annual meeting of the National Association of Insurance Committees in October last by Mr. R. H. Mushens, Clerk to the Sunderland Insurance Committee, and met with general approval. In his paper, which has been reprinted and can doubtless be obtained through the Sunderland Insurance Committee, Mr. Mushens describes the proposed method of working such a colony, and shows in detail the probable cost and the general financial arrangements which would have to be made by the various bodies concerned in order to meet it. Colonies have already been started in the neighbourhood of Edinburgh and of Glasgow, as also in Cambridgeshire, and the experience gained in them is duly recorded. Combined action by the county authorities of Durham and Northumberland, and of Middlesbrough has been agreed upon, and their example may well be commended for imitation by county councils and insurance committees in all parts where tuberculosis has to be dealt with. Combined action on a large scale may ultimately succeed in checking the progress of the scourge which during the last few years has shown little sign of abatement.

THE MEDICAL PROFESSION IN OLD FLANDERS.

FLANDERS has played a great part in the history of medicine, and a brief account of the evolution and organization of the profession may be of interest at the present time when the country is rising from its ashes. The chief source is a thesis by A. J. Faidherbe.[1] The oldest university in Flanders, Louvain, imperishably associated with the great name of Andreas Vesalius, was founded in 1425, the youngest, Douai, was created by Philip II of Spain in 1560. Three medical degrees were conferred—bachelor, licentiate, and doctor. The examinations at Louvain and Douai were very severe, and until the eighteenth century but few licentiates obtained the M.D. degree. In 1607 it was decreed that any one wishing to practise medicine in Belgium must obtain a licence from one or other of these universities or be approved by the special medical examiners of the realm. In 1631 the aldermen of Bruges established a course of anatomy for the instruction of apprentices, and surgery in Flanders then began to take its proper place. From the middle of the seventeenth century there was a school of surgery at Ghent where the programme of studies included courses in anatomy, surgery, midwifery, and materia medica. Surgery was also taught at the military hospitals of Lille and Gravelines and in the colleges of surgery at Dunkirk and Douai. In 1695 there were in French Flanders eighty-six physicians who were granted coats of arms in recognition of their services to the State. Physicians became royal councillors, members of the States-General, counts and marquises. Penalties for malpraxis included heavy fines, indemnities to patients, and suspension. A practitioner who induced abortion or corrupted morals was whipped at the four corners of the city and banished for fifty years. In the thirteenth and fourteenth centuries Bruges, Lille, Ypres, Dunkirk, and other cities had "pensionary" physicians whose duty it was to attend the poor. There were such surgeons for various specialities such as hernia, stone, dislocations, fractures, and sprains, diseases of the eye, and syphilis. In 1757 Lille had a woman pensionary for the application of bandages to hernias. Surgeons were called in to inspect the bodies of those who had died in suspicious circumstances, and medico-legal questions were usually referred to the pensionary physician or surgeon, who had the right to make *post-mortem* examinations. Almost every city in Flanders had pensionary midwives; this service was organized in the thirteenth or fourteenth century. In 1486 the first examination of midwives took place, and regular diplomas were conferred on them. In cases of difficult labour they had to call a physician in consultation. They were forbidden to administer any drug unless it were prescribed by a physician; if the fetus was dead they had to perform embryotomy, and if the mother died during labour before the child was born they had to deliver by Caesarean section. Most of the medical organizations in Flanders were founded by the civic authorities. Every large city in Belgium had its collegium, or chamber of health, including in its membership not only physicians, surgeons, and pharmacists, but aldermen and other civic officials. It controlled practitioners, had charge of the health of the community, punished quacks, and countersigned the diplomas of recent graduates. A fraternity of St. Luke was founded at Bruges in 1662 by Van der Berghe; its rules prohibited the sale of drugs and the practice of surgery. The hospital of St. Jean de Bruges was founded about 1188. When the Germans invaded Flanders in 1914 it retained its mediaeval features but it had been greatly enlarged. There were 250 beds, and for over 700 years the sick were cared for by Augustinian brothers and sisters. The Spaniards

[1] Les médecins et les chirurgiens de Flandres avant 1879. *Thèse de Paris*, 1892.

seem to have done nothing in the way of founding hospitals in Flanders. In the seventeenth and eighteenth centuries, when the country was under the dominion of Louis XIV and Louis XV, a number of military and civil hospitals were established. Many medical institutions of Flanders perished amid the convulsions of the French Revolution.

THE KING'S MESSAGE.

THE King's speech to the two Houses of Parliament and the representatives of the Dominions and of India, in the Royal Gallery of the Palace of Westminster, was in substance and diction worthy of an occasion "without parallel in our history and in the history of the world." It proclaimed that the doctrine that force shall rule the world has been disproved and destroyed, and appealed to us to enthrone the rule of justice and international right, to create a better Britain, bestow more care on the health and well-being of the people, and ameliorate further the conditions of labour. In the course of his speech he touched upon every aspect of the manifold activities of the British nations in the war, and made the following reference to the medical services: "Notable, too, has been the contribution made to the common welfare by those who volunteered as surgeons, physicians, chaplains, and nurses, fearlessly exposing themselves to danger in their tasks of mercy."

BRITISH PRISONERS AND GERMAN DOCTORS.

IT must have occurred to many members of the profession in this country to ask whether some steps should not be taken to express detestation of the inhumanity of German doctors towards British prisoners and their complicity in the worst cruelties inflicted on these unfortunate men. After all, these Germans are members of our profession, and medical education in Germany has even been suggested as a model for ourselves. The events of the last four years, and especially the treatment of prisoners, have proved that the German system leads to a low standard of competence, and a still lower standard of conduct. If we remain silent history will note that the substantiation by evidence which not only satisfied the legal experts appointed to weigh it, but excited their deep indignation, raised no protest from the doctors of this country. The report on the employment in coal and salt mines of British prisoners of war in Germany,[1] signed by Mr. Justice Younger on behalf of the Government Committee on the treatment by the enemy of the British prisoners of war, contains a story of abominable cruelty. As in the case of ordinary prisoners' camps, the lot of the men is said to have depended a great deal on the character of the "Kommandoführer," and the majority of these persons appear to have been cruel, cowardly, and incompetent. Unfortunately, in this report, as in so many others there is evidence that the German medical men were callous and ignorant. The report contains the following passage: "We come finally to one of the worst points, and at the same time one of the most universal, in the management of the mining camps. The provision made for medical attention in cases of sickness and accident is slight at best, although it might in these instances be considered sufficient if it were properly administered. Each camp is visited once or twice a week by a local civilian doctor, who is supposed to be responsible for the medical care of the Kommando. He is not called upon to treat serious cases, which are passed to the nearest regular hospital. But in all mining work, and more especially in the salt mines, constant vigilance is necessary to prevent even the lighter cases from developing serious consequences. Small accidents are common, the men are in no condition of health to be able to disregard them, and in the salt mines they suffer perpetually from eye trouble and from a distressing kind of abscess, both of which are liable to become dangerously infected in the conditions of their work. In many places the doctor is clearly convicted of carelessness and perfunctory treatment." The Royal Colleges of Physicians and Surgeons in Great Britain might, we conceive, properly give formal expression to the indignation of the medical profession. Some time ago, as reported in our columns recently, the council of the Royal College of Surgeons of England decided to omit the names of universities in Germany and Austria from the list of hospitals and schools of medicine and surgery from which certificates of professional education would be received. This decision was brought to the notice of the Royal College of Physicians of London on October 31st, when it accepted the suggestion of the sister college, that the desirability of omitting those universities from the published lists of the Conjoint Examining Board should be brought to the notice of the Committee of Management. This may be taken as an indication of the sentiment of the Colleges, and we trust that a formal protest in the sense we suggest may be made.

[1] H.M. Stationery Office. Cd. 9150. Price 1d. net.

TOTAL BRITISH CASUALTIES.

PRELIMINARY statistics of total British casualties in the armies in all theatres during the prosecution of the war, given by the Parliamentary Secretary to the War Office, show that the total number of killed, including those who died from wounds or other causes, is 658,704 (officers 37,876, other ranks 620,828). The number of wounded is 2,032,142 (officers 92,664, other ranks 1,939,478); the number of missing, including prisoners, is 359,145 (officers 12,094, other ranks 347,051). Under missing are included 6,741 officers and 164,767 other ranks known to be prisoners of war, and also over 80,000 officers and other ranks whose deaths have been accepted for official purposes. In addition there have been 19,000 deaths from various causes amongst troops not forming part of any of the expeditionary forces. Among the wounded are included those who have been disabled on account of illness. Further, under this head, officers and men who have been wounded several times have been counted on as many occasions.

AT a meeting of the Fellows of the Royal Society of Medicine, held on November 13th, when the President, Sir Humphry Rolleston, was in the chair, the diploma of Honorary Fellowship of the Society was presented to Sir Alfred Keogh, G.C.B., late Director-General Army Medical Services.

APART from the university constituencies the only medical men whose candidature at the general election we have seen announced are Dr. Christopher Addison, M.P. Shoreditch), Dr. Clifford Brookes (High Peak), Captain Donald Campbell, R.A.M.C. (North Paddington), Dr. W. A. Chapple, M.P. (Clackmannan and Eastern [Stirling]), Sir Wm. Collins, M.P. (Derby), Dr. J. S. Crone (Willesden, W.), Dr. R. Dunstan (Moseley, Birmingham), Dr. Farquharson (Leeds, North), Sir Thomas Flitcroft (Farnworth, Lancs.), Lieut.-Col. J. Kynaston (Bilston), Dr. Bouverie McDonald (Wallasey), Dr. Donald Murray (Western Isles), and Dr. Rutherford (Durham, Bishop Auckland). We shall be obliged to correspondents who will send information enabling us to publish a complete list in our next issue.

THE awards of the Royal Society medals for this year have been announced. The Copley medal goes to Professor H. A. Lorentz, late professor of physics in the University of Leyden, For. Mem. R.S., for his distinguished researches in mathematical physics; the Davy medal to Professor F. S. Kipping, F.R.S., professor of chemistry, University College, Nottingham, for his studies in the camphor group and among the organic derivatives of nitrogen and silicon; the Darwin medal to Dr. H. F. Osborn of New York, for his valuable researches on vertebrate morphology and palaeontology; and one of the Royal medals to Professor F. G. Hopkins, F.R.S., professor of bio-chemistry in the University of Cambridge, for his researches in chemical physiology.

THE WAR.

ANTI-VENEREAL MEASURES IN THE AMERICAN ARMY.

DR. W. A. PUSEY, Chairman of the Committee on Venereal Disease appointed by the Surgeon-General of the United States Army, has recently published a detailed account of the manner in which the venereal disease problem is handled in that army.[1]

The venereal disease rate of the army previous to 1898 averaged about 80 to 85 per 1,000; had the present more rigorous conditions of recording syphilis then been in force, it is estimated that the rate for venereal diseases during that period would have been 110 per 1,000 or more. With the mobilization of new troops in the Spanish-American war in 1898 the rate suddenly doubled, going to 160 per 1,000. The high rate then produced persisted after the war for thirteen years, varying between 180 and 160 per 1,000 until 1911. Between 1909 and 1911 the medical department developed its present policy. Its most important features were regulations which provided for loss of pay for disability from venereal diseases, periodical physical inspections, and venereal prophylaxis. The result of this policy was shown by the rapid and continuous decline in venereal diseases. From a rate of 164 per 1,000 in 1911 it dropped to 116 in 1912 and to 86 in 1913. The measures taken are first, social and educational, and secondly, prophylactic and medical. Social measures include the repression of prostitution and of the liquor traffic, which it is held go together, and the provision of proper social surroundings and of opportunities for recreation and diversion. Alcoholic liquor is a factor in the diffusion of venereal diseases, owing to its weakening effects upon those inhibitory influences that under ordinary conditions prevent man's giving way to his impulses.

The control of the liquor traffic and of prostitution has called for co-operation between federal and local authorities. Inside cantonments and other Government reservations the federal authorities are supreme, but in addition a district has been provided by law, consisting of a zone, at present designated by the Secretary of War to be five miles, around each of the cantonments. In those zones the federal authorities are in a position to control completely the liquor traffic and the various conditions which encourage prostitution. Outside the zones the Federal Government can still exert great influence. But for the most part reliance has been placed in great measure on the local civil authorities, and, owing to the awakened public conscience, they have, almost without exception, realized their responsibility in these matters, and responded as well as the most sanguine could have asked in their efforts to improve them. The scheme does not include the segregation of prostitutes, nor their examination or certification, but every endeavour is made to stimulate activity in caring for venereal disease among the civil population, with the aim, among others, of reducing the number of "carriers."

For the army itself the first part of prophylaxis is the prevention of infection after exposure. The regulations with regard to this are of universal application, and care is taken to see that it is thoroughly carried out. Venereal prophylaxis is a part of the duty of every regimental infirmary and of every other infirmary that has in its care the health of a unit of soldiers. The regimental infirmaries do most of this work and everything for giving prophylactic treatment is always accessible in every one of these. The medical officers are responsible for it, but it is carried out by specially trained non-commissioned officers, one of whom is constantly on duty, so that the returning soldier can get prophylactic treatment at any time in the twenty-four hours that he applies for it. As far as possible prophylactic treatment is carried out seriously, without allowing an atmosphere of levity or obscenity to creep in. The necessity for medical prophylaxis is instilled into the soldiers' minds. They are told that it is not a sure preventive of infection; that the sooner it is applied the more likely it is to succeed; and that after eight hours it is likely to be ineffective. The taking of it, if exposed, is a matter of army regulation. If a man contracts venereal disease, he is not punished beyond losing his pay while the disease disables him for duty, provided he had prophylaxis after exposure. But if he contracts a venereal disease and has not, according to regulations, had prophylactic treatment, he is court-martialled for disobedience of orders, and, if convicted, is punished. Since 1912 there have also been fortnightly physical inspections.

In the planning of the base hospital of each cantonment full provision has been made for venereal diseases. It is a part of the scheme that men suffering from acute venereal disease shall be confined to the hospital until the acute infectious stages are past; this applies to all cases of acute gonorrhoea and all cases of syphilis which have early active lesions. It has sometimes been found difficult to get this policy carried out. One of the arguments for it is the great advantage it affords in gonorrhoea for curing quickly and preventing its spread to the posterior urethra; another is the assurance it gives of thorough early treatment of syphilis, and the rapidity with which the infectious stage is passed; a third, and a very great advantage, is the reduction in the danger of non-venereal spread of these diseases.

Each base hospital is provided with a general laboratory in which Wassermann tests are made, and it is intended that each venereal service in the base hospital shall have its own small laboratory, equipped for examination for spirochaetes and bacteria and for the examination of urine.

The conduct of medical affairs in the cantonments depends to a very large extent on the attitude of those in supreme authority—that is, (1) the commanding general in a cantonment; (2) the division surgeon; and (3) the commanding officer of the base hospital.

The place where patients with chronic gonorrhoea and syphilis are likely to fail to get expert care is in the division as distinguished from the base hospital. The regimental surgeon must be a general practitioner while he is in that position. Adequate care of syphilis and of the chronic complications of gonorrhoea eminently demand expert training, and this is no more to be expected of the regimental surgeon than is special training in all the other specialities. Moreover he is not provided with the special equipment necessary for it. It follows, therefore, that gonorrhoea and syphilis should, as far as possible, be taken out of the care of the general medical officers. The policy is to send them to hospital as freely as practicable, and everything is done to encourage the return of ambulatory cases to the hospital for such treatment as they need. It is also the policy to have a qualified officer detailed for the special duty of supervising all venereal matters, including the treatment of venereal cases throughout the cantonment. But in spite of this the fact remains that the weak point in the care of the soldier's venereal diseases is the care he receives when he is on duty. He is allowed to stay on duty often when it would ultimately be better for him and for the service if he were nominally as well as actually sick, and under expert care. This is often due to the attitude of the commanding line officer. He wants his men or he does not want them, and he has no use for the soldier who is taking half-days off to go to the hospital for treatment. There is room for much education here, and for the development of considerably more co-operation.

The results of the policy have been satisfactory. Between 1897 and 1900, a period that covered the Spanish-American war, the venereal rate went up from an average of 80 per 1,000 to 160. Since 1913 the rate has remained under 90, excepting during 1916. In 1916, when there was a rapid increase of the army and mobilization on the Mexican border, the rate went to 91.4. Dr. Pusey takes the rate of 90 as the mean average to be striven for in the present crisis, although the rate of 91 in 1916 would certainly be fairly justifiable as the standard. The rate for the regular army from September, 1917, to May, 1918, averaged a little better than 90. With the second week of mobilization the venereal rate for the National Army shot up to 367 per 1,000. The National Guard at this time showed a rate of 150. The rate of the Regular Army at this date was 80. The very high rate in the National Army is to be accounted for by the fact that when venereal disease is discovered for the first time in a soldier it is counted as a new case, although it may be an old infection; four weeks had to elapse before the incidence of venereal disease in a body of troops could be determined. The rate for the National Army for the first four weeks after

[1] *Journ. Amer. Med. Assoc.*, September 28th, 1918.

mobilization was twice that of the National Guard. This would appear to suggest that the prevalence of venereal disease is greater in the civil population than in the army. On December 1st, 1917, the rate of the National Army fell below 90, and the rates for the army in France were lower.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Lost at Sea.

SURGEON LIEUTENANT D. S. MACKNIGHT, R.N.

H.M.S. *Britannia*, a battleship of 16,350 tons, was torpedoed and sunk by a German submarine in the western entrance of the Straits of Gibraltar on the morning of November 9th. Two officers and about 40 men were lost, 39 officers and 693 men saved. One of the two officers lost was Surgeon Lieutenant Dundas Simpson MacKnight. He was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1900, afterwards taking the Liverpool D.T.M. in 1911. He served as a civil surgeon in the South African war in 1901–2, receiving the medal; and afterwards as medical officer of the British South Africa Company. He joined the navy as a temporary surgeon in 1915. He was the second son of the late Rev. John MacKnight of Whithorn.

Wounded.

Surgeon D. L. Baxter, R.N.

ARMY.

Killed in Action.

CAPTAIN R. CLARK, R.A.M.C.

Captain Robert Clark, killed on November 7th, was the last surviving son of Inspector Clark, police office, Burnbank, Hamilton. He was educated at Hamilton Academy and Glasgow University, graduating M.B., Ch.B. at the latter in 1914. For a short time he acted as house-surgeon at the Glasgow Royal Infirmary and took a temporary commission in the R.A.M.C. in July, 1915. At the time of his death he was attached to the 20th Hussars. His two brothers, one of whom was an officer in the R.A.M.C., had already fallen in action.

Died of Wounds.

MAJOR H. BEAL, U.S.M.C.

Major Howard Beal, United States Medical Corps, of Waterlane Farm, Shrewsbury, Massachusetts, died at Neuilly, near Paris, on July 20th, aged 49, of wounds received at Roy St. Nicholas, near Pierrefonds, on July 18th. He was chief surgeon to the American Women's Hospital at Paignton, Torquay, during 1914–15.

CAPTAIN H. DUNLOP, C.A.M.C.

Captain Harry Dunlop, C.A.M.C., was born at Kingston, Ontario, on October 21st, 1883, and graduated in medicine at Queen's University, Kingston, Ontario. He came to England in September, 1916, and served as M.O. in units in England until November, 1917, when he went to France and served with the 102nd Battalion, to which unit he was attached when he received the wounds of which he died on November 2nd.

CAPTAIN H. P. WHITWORTH, R.A.M.C.(S.R.).

Captain Henry Parkes Whitworth, R.A.M.C.(S.R.), was reported as having died of wounds, in the casualty list published on November 12th, having previously been returned as wounded in that of October 31st. He was educated at Guy's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1914. He took a commission as lieutenant in the Special Reserve of the R.A.M.C. on December 18th, 1914; joined for service on January 4th, 1915; and was promoted to captain six months later. He was attached to the King's Own Scottish Borderers (25th Foot).

LIEUTENANT P. R. SHANNON, R.A.M.C.

Lieutenant P. R. Shannon, R.A.M.C., was reported as having died of wounds, in the casualty list published on November 15th. He had only recently qualified and taken a temporary commission in the R.A.M.C.

Died on Service.

LIEUT.-COLONEL J. E. HODGSON, R.A.M.C.

Lieut.-Colonel John Edward Hodgson, R.A.M.C., died at Salonica on November 5th, aged 44, of pneumonia following influenza. He was born on August 31st, 1874, the son of the late Caleb Hodgson of Carlisle, and educated at Owens College, Manchester, taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1898, and the D.P.H. of the London Colleges in 1913. After acting as resident clinical assistant at the Barnes Convalescent Hospital, Cheadle, Manchester, he entered the R.A.M.C. as lieutenant on January 28th, 1899, becoming captain on January 28th, 1902, major on October 28th, 1910, and lieutenant-colonel on March 1st, 1915.

LIEUT.-COLONEL J. T. MCENTIRE, R.A.M.C.

Lieut.-Colonel John Thomas McEntire, R.A.M.C., was reported as having died on service, in the casualty list published on November 12th. He was born on January 20th, 1880, and educated at Trinity College, Dublin, where he graduated as M.B., B.Ch., and B.A.O. in 1903. He joined the R.A.M.C. as lieutenant on August 31st, 1903, became captain on January 31st, 1907, and major on February 28th, 1915, and had since been promoted to lieutenant-colonel.

CAPTAIN P. S. GREEN, R.A.M.C.

Captain Philip Sydney Green, R.A.M.C., died at Wimereux, near Boulogne, on November 13th, aged 33. He was the fourth son of the late John Green, J.P., of Newton-le-Willows, Lancashire, and was educated at the Victoria University, Manchester, where he graduated M.B. and Ch.B. in 1911. He joined the R.A.M.C. as a temporary lieutenant early in 1916, and was promoted to captain after a year's service.

CAPTAIN L. T. MCCLINTOCK, R.A.M.C.(V.).

Captain Lawson Tait McClintock, R.A.M.C.(V.), died at Loddon, Norfolk, on November 11th, of pneumonia following influenza. He was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1901. After acting as assistant house-surgeon of Salop Infirmary he went into practice at Loddon, where he was medical officer of the workhouse, and of No. 2 district of Loddon and Clavering Union, also medical officer of health of Loddon and Clavering districts. He held a commission as captain in the R.A.M.C. Volunteers, was medical officer in charge of the Red Cross hospitals at Loddon and Hedenham Hall, and civil medical practitioner in charge of troops at Loddon.

CAPTAIN A. B. ROBERTSON, R.A.M.C.(S.R).

Captain Angus Burns Robertson, R.A.M.C.(S.R.), died on November 8th at Dundee War Hospital, of pneumonia following influenza. He was the only son of Captain Angus Robertson, R.A.M.C., and was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1911, after which he went into practice at Loanhead, Midlothian. He joined the Special Reserve of the R.A.M.C. as lieutenant in 1917, had served in Egypt and Palestine, and was under orders for France at the time of his death.

The following officers of the C.A.M.C. died at sea on the voyage from Canada to England on the dates indicated:

Captain C. D. Hamilton (October 9th).
Lieutenant R. H. Lalande (October 6th).
Lieutenant W. McLeod (October 10th).

Wounded.

Major W. H. Morrison, R.A.M.C. (T.F.).
Captain E. T. Curran, Canadian A.M.C.
Captain A. R. Hagerman, Canadian A.M.C.
Captain A. Hunter, R.A.M.C.
Captain I. W. Jones, R.A.M.C. (temporary).
Captain P. G. Leeman, R.A.M.C. (temporary).
Captain J. Manuel, M.C., R.A.M.C. (temporary).
Captain A. U. Millar, R.A.M.C. (temporary).
Captain C. H. G. Prance, R.A.M.C. (temporary).
Captain R. Rodger, R.A.M.C. (S.R.).
Captain J. Rowland, R.A.M.C. (S.R.).
Captain W. G. Shakespeare, R.A.M.C.
Captain M. W. Thomas, Canadian A.M.C.

DEATHS AMONG SONS OF MEDICAL MEN.

Adam, Walter, Lieutenant Yeomanry, attached Machine Gun Corps, third son of the late Dr. James Adam and Mrs. Adam, of Quarry Down, Hythe, died at Grantham Military Hospital, November 3rd, of pneumonia after influenza. He got his first commission in the Royal East Kent Yeomanry on March 31st, 1915.

Barker, Thomas Chesman, Second Lieutenant R.E., killed in action on November 4th, aged 20, was the son of Dr. Chesman Barker of Finchley. He obtained a war degree (B.Sc.Eng.) at the Indian University in 1917, entered the Military Academy at Woolwich in 1916, having taken there the King's medal, and was sent to France in September, 1918.

Brocklehurst, Evelyn Pierrepoint, Private Royal Fusiliers (City of London Regiment, 7th Foot), fifth son of the late T. H. Brocklehurst, surgeon, died of wounds at a casualty clearing station on September 28th, aged 25.

Dickey, R. G. A., Captain 5th Battalion Manchester Regiment, attached to R.E., died at Greystones Hospital, Blackpool, on November 14th from gassed pneumonia and nephritis contracted on April 9th, 1918. Son of Dr. Dickey, M.B.E., J.P., of Higgin House, Colne, he joined the army in August, 1914, from Manchester University O.T.C., and was gazetted second lieutenant 5th Battalion, Manchester Regiment. He was wounded in the Dardanelles, August, 1915, then went to Egypt for a year, and had served in France from January, 1917.

Dickson, G. Murray, Second Lieutenant Black Watch (Royal Highlanders, 42nd Foot), younger son of the late Dr. G. Cecil Dickson, medical officer of health Carnoustie, killed October 26th, aged 27. He was in the jute industry in Calcutta, and a member of the Calcutta Scottish Volunteers, and came to Europe to enlist early in 1917.

Hammond, Thomas Hill, Second Lieutenant Machine Gun Corps, son of the late Dr. Hammond, of H.M. Prison Service, killed October 31st, aged 21. He enlisted in the 10th (Scottish Territorial) Battalion of the King's Liverpool Regiment (8th Foot) in July, 1916, afterwards transferred to the M.G.C., got his commission in July, 1918, and returned to the front only a week before his death.

Helm, Henry Paul Dundas, Captain Royal Air Force, late Border Regiment, eldest son of Dr. R. Dundas Helm of Carlisle, died at Carlisle on November 6th, aged 24. Before the war he was a medical student at Edinburgh, and had passed his first M.B. examination.

Leigh, Henry Godfrey Thomas, Second Lieutenant (Labour Corps), second son of Dr. W. W. Leigh of Glyn Bargoed, Treharris, Glam., died in France of pneumonia following influenza on November 11th in his 34th year. He was educated at Sherborne and the Agricultural College, Downton. He went to South Africa some twelve years ago, and took up farming in Zululand. In 1915 he joined the S. African Artillery, and took part in the West African campaign under General Botha. He returned to England in 1917 and joined an officers' training corps at Cambridge, eventually obtaininga commission in the Labour Corps, after which he was stationed at Sutton, and only left for France last month.

Lyle, Hayden Stratton, M.C., Captain Canadian Mounted Rifles, third son of the late Dr. R. C. Lyle of Dunmow, killed November 6th.

Macaulay, James, Second Lieutenant Rifle Brigade, elder son of the late Dr. Macaulay of Perth, killed in France, November 4th, aged 20.

MacVicker, John Everard Churchill, Lieutenant Royal Air Force, eldest son of Dr. C. G. MacVicker of Street, Somerset, reported missing on July 22nd, now presumed killed on that date, aged 20. He was born at Isleham, Cambridgeshire, in 1897, educated at Aldenham School (Paull's), where he was in the cricket and football teams, and joined the London University O.T.C. In October, 1916, he transferred to a cadet corps for the R.F.C., got his commission in February, 1917, and went overseas in May, 1918.

Moore, Harold Thomas Pelham, M.C., Lieutenant Royal Field Artillery, only son of Lieut.-Colonel E. J. Moore, R.A.M.C., of Blackheath, killed November 4th, aged 21. He got his commission on October 30th, 1914.

Morse, Eric Victot, M.C., Captain the Buffs (East Kent Regiment, 3rd Foot), second son of Mr. Thomas H. Morse, F.R.C.S., of Deal, killed October 23rd, aged 26. He was born at Norwich in 1892, and was educated at Haileybury and at Pembroke College, Cambridge, where he graduated in 1913. He enlisted in the Buffs on August 11th, 1914, got a commission in the following month, and went to France in 1915. He received the Military Cross last September for gallantry in the German offensive last spring.

Prichard-Evans, Evan Lindsay, Lieutenant Royal Artillery, youngest son of the late Dr. Prichard-Evans of Mountain Ash, died November 7th, of pneumonia, at Hillington Hall Auxiliary Hospital, King's Lynn.

Rowland, John Walter Bruce, Second Lieutenant Royal Field Artillery, only son of Dr. E. D. Rowland, I.S.O., medical service, British West Indies, killed November 1st, aged 19.

Semple, R. E. W., Captain Royal Field Artillery, second son of Sir David Semple, of Royston, Herts, died in hospital abroad on November 5th of wounds received on October 22nd, aged 22. He was attached to a trench mortar battery, Guards Division.

[We shall be indebted to relatives of those who are killed in action or die in the war for information which will enable us to make these notes as complete and accurate as possible.]

REPATRIATED OFFICERS.

ON November 12th was published a list of officers repatriated from Germany, where they had been prisoners of war, most of them taken in the German advance in March and April last. Out of a total of 97, no less than 61 were medical officers. One, Captain Tickle, has died since his return to England. Captain Griffin was originally reported as killed. The names (all R.A.M.C.) are:

Colonel A. Milne Thompson,† C.M.G., M.C.

Lieut.-Colonels: A. C. H. Gray, H. B. Kelly, D.S.O.

Majors: J. Kennedy,‡ J. S. McConnachie,† M.C.

Captains: W. Arnott,* M. T. Ascough,† M.C., A. G. Bisset,* M.C., T. Blackwood,* attached R.F.A., H. Crassweller,* attached Royal Sussex Regiment, C. R. Crowther,† S. J. Darke,* M.C., attached Queen's (Royal West Surrey Regiment), W. F. Dunlop,* J. G. Elder,* M. S. Esler,* attached Middlesex Regiment, C. W. Fowler,* M.C., attached Royal Berkshire Regiment, D. Gillespie,* attached R.E., L. S. H. Glanville,* attached Royal Irish Rifles, P. H. Green,† E. H. Griffin,* D.S.O., M.C., R. M. Handfield Jones,* M.C., W. G. Harnett,* G. F. P. Heathcote,* M.C., attached East Lancashire Regiment, A. C. Hepburn,† R. W. Hodgson Jones,* attached Royal Inniskilling Fusiliers, C. E. P. Husband,* attached Northumberland Fusiliers, W. J. Isbister,* M.C., attached Border Regiment, G. L. Jones,* attached Scottish Rifles, J. M. Mackenzie,* M.C., attached Northumberland Fusiliers, D. Macnair,† H. C. Martin,* W. T. P. Meade-King,† C. A. Meaden,* attached Middlesex Regiment, C. Mearns,† attached Sherwood Foresters, J. C. Muir,* attached Durham Light Infantry, F. C. Nicholls,† M.C., attached South Staffordshire Regiment, W. O'Brian,* attached Lancashire Fusiliers, R. W. Pearson,* M.C., attached Durham Light Infantry, S. V. P. Pill,* attached Wilts Regiment, W. A. Rees,* J. Ross,* M.C., attached Royal Scots, A. B. Simpson,* F. P. Smith,* R. M. Soames,* attached Norfolk Regiment, J. Sullivan,* J. Tate,* attached East Lancashire Regiment, F. R. Tickle,* attached Rifle Brigade, G. Torrance,* M.C., W. Warburton,* attached Royal Dublin Fusiliers, D. A. Wilson,* C. Witts,* M.C.

Lieutenants: A. Boyle,* J. W. Jones,* attached Rifle Brigade, A. M. McCormick,* attached Lincoln Regiment, O. Le F. Milburn,* attached Royal Dublin Fusiliers, F. B. O'Dowd,* attached West Yorkshire Regiment, E. S. Phillips,* attached Royal Fusiliers, F. J. Power,* attached Royal Inniskilling Fusiliers, D. Robertson,* attached Royal Scots, W. H. Rowden.*

Lieutenant and Quartermaster F. W. B. Carter.

The following medical officers have arrived at Alexandria from captivity in Turkey:

Lieut.-Colonels: E. F. E. Baines, I.M.S., E. Bennett, R.A.M.C.

Majors: S. G. S. Haughton, I.M.S., W. M. Pearson, I.M.S.

Captains: L. A. P. Anderson, I.M.S., E. G. S. Cane, R.A.M.C., C. Newcomb, I.M.S., T. E. Osmond, R.A.M.C., M. L. Purl, I.M.S., J. S. Startin, R.A.M.C.

* = Temporary. † = Territorial Force. ‡ = Special Reserve.

HONOURS.

ORDER OF THE BRITISH EMPIRE.

A SPECIAL Supplement to the *London Gazette*, dated November 18th, contained a list of appointments to the Most Excellent Order of the British Empire conferred for distinguished service in connexion with military operations. The following medical officers are included in the list:

To be O.B.E.

In France and Flanders.—Captain David Hammand Fraser, R.A.M.C. (for an act of gallantry not in the presence of the enemy).

In Mesopotamia.—Majors Samuel R. Christophers, C.I.E., I.M.S., Frederick P. Mackie, I.M.S.; Captain William Dunlop, R.A.M.C.(S.R.); temporary Captains David F. Borrie, R.A.M.C., Edward N. Glover, R.A.M.C.

In East Africa.—Lieut.-Colonel Ernest R. Rost, I.M.S., temporary Lieut.-Colonel Donald Macaulay, R.A.M.C.; Majors George D. Maynard, S.A.M.C., Eustace L. Scott, M.C., I.M.S., Charles E. Southon, I.M.S.; Captain (acting Major) William D. Miller, S.A.M.C.

In Egypt.—Major Edward Gibbon, R.A.M.C.

To be M.B.E.

In East Africa.—Captains Raymond Bury, Nyasaland Medical Service, William H. Elliott, R.A.M.C.(S.R.), Geoffrey B. Fleming, R.A.M.C.(T.F.), William H. Kauntz, E.A.M.S.; temporary Captains Geoffrey D. H. Carpenter, Uganda Medical Service, Donald McIntyre, R.A.M.C.

A Eugenic Society has been founded at Sao Paulo, Brazil, with Dr. Arnaldo Vieira de Carvalho, Director of the Faculty of Medicine and Surgery of the University, as President.

THE University of Toronto recently received an endowment from a citizen of Toronto for the establishment of chairs in pediatrics, gynaecology, probably in orthopaedics, and in some special branch of medicine to be decided upon later. The amount of these endowments will be from half a million to three million dollars.

Scotland.

NOVEMBER 11TH IN EDINBURGH.

IN Edinburgh, after a week of tempestuous weather and heavy rain and sleet, the air was still at 11 o'clock on Monday morning, November 11th, as the first flags were shaken out in Princes Street, and the faces of the people on that historic highway had a radiance not entirely due to the wintry sun. A few minutes later there arose a strange and continued humming, not altogether unmusical, which was presently realized to be due to the great fleet in the Firth of Forth blowing off steam, literally and metaphorically, in acclaim of the great thing which had come to pass. Ere long the bells of the city churches were ringing glad peals, but with a restrained force and volume which may have been due to want of practice or to respect for the many whose hearts were still too sore for full and unlimited joy-making. The students of the university celebrated the armistice by a torchlight procession on Friday evening. Seen dimly through a fog the high-spirited processionists were perceived to include many of the familiar characters of student revelry, such as cooks, nurses, policemen, and pierrots. The Black Watch pipe band and the Heriot School band set the step, and great crowds of spectators preceded and followed the procession; from the quadrangle of the old university down the bridges along Princes Street to Moray Place, where the principal, Sir Alfred Ewing, and Lady Ewing, acknowledged the cheering from a balcony. Thereafter the procession returned to Princes Street, and found its way to Bruntsfield Links by way of Lothian Road and Leven Street.

MEDICAL STUDENTS IN GLASGOW.

The medical faculty of the University of Glasgow is embarrassed by the number of medical students. At a recent meeting of the University Court the Principal, Sir Donald MacAlister, gave figures showing that there had been a steady increase in the number of new medical students since 1911. In 1916, following on the Military Service Act, there was a decrease, but the numbers jumped up from 177 in 1916 to 262 in the summer session of this year. Even though there were no increase next year, the effect of the jump this year would, he said, be felt for four or five years. Professor Noël Paton stated that in addition there had been an increase in women students; the total number of new medical students had risen from 142 in 1912 to 393 in the present year. The accommodation was planned for a much smaller number. After discussion, the Court instructed the medical faculty to make practical suggestions. The medical faculty was requested also to make plans for post-graduation courses for medical graduates who had been on service.

England and Wales.

KING EDWARD'S HOSPITAL FUND FOR LONDON.

WE have received from King Edward's Hospital Fund for London the fifteenth annual statistical report, prepared from the published accounts of 108 London hospitals, and from reports made to the Fund.[1] These institutions, together with St. Bartholomew's and the Cancer Hospitals, had 11,729 beds in average daily occupation in 1917, and the number of in-patients admitted was 147,598, including 28,013 naval and military patients who accounted for 31 per cent. of the total average occupied beds. While there has been an increase of 1,997 in the beds provided since 1913, the number available for civilian patients has been reduced by 1,659. The ordinary expenditure in 1917 amounted to £1,719,030, which was 27.36 per cent. greater than in 1913. Changes in the number of occupied beds due to the provision for wounded soldiers affected hospitals very unequally, and often in a manner quite outside the control of the hospital management. Thus much of the statistical material which is useful in ordinary times is useless under war conditions, and for this reason calculations based on comparisons with average costs have again been omitted from the report. The heavy additional burden already thrown upon the voluntary hospitals by the great rise in the prices of food, drugs, and all other requisites was more than doubled during the year.

[1] London: Spottiswoode, Ballantyne, and Co. Price 1s. net.

ROYAL ALBERT INSTITUTION, LANCASTER.

The fifty-fourth annual report was recently submitted to the annual meeting of subscribers held at Lancaster in place of the tenth quinquennial festival, which, had it not been for the war, would have been celebrated this autumn. From a table printed in the report of the central committee we learn that at the first such festival, held in 1873, the number of patients in the institution was 141, and its income £5 523, and that in September, 1918, the patients resident had increased to 732, and the annual income to £35,790. Altogether during the last fifty years the subscribers had elected 2,158 inmates, in addition to 19 retained for a further term. These had been trained and maintained at little or no cost to their relatives. In addition a large number of cases had been received from local authorities and boards of guardians, the charge to whom had recently been increased owing to war exigencies. But the committee had constantly kept in mind "that the Royal Albert was in origin and essence a charitable foundation," depending on the charitable contributions of the public, and they had been careful not to increase the charge for patients admitted at reduced rates of payment borne by necessitous parents, and any profits made by the reception of more wealthy cases went to the relief of those who were poorer. The report of the medical superintendent (Dr. W. H. Coupland) shows 734 patients (483 males, 251 females) resident on June 30th, 1918, with 59 admissions, 39 discharges, and 19 deaths (8 from tuberculous diseases) during the preceding twelve months. The reports of the visiting commissioners record satisfactory progress, especially in the improved arrangements made for the training of low-grade defectives. Much has been done in the way of introduction of new industrial occupations, such as the making of toys, soft slippers, and nets; and an improved school classification has been carried out. Sixty additional acres of farm land have been secured, and will enhance the existing facilities for training the patients in outdoor work. The general health is stated to have been on the whole satisfactory, though, owing to food rationing difficulties, "individual patients have lost weight and have needed special observation for this reason."

The central committee contemplate an "ambitious scheme" of extension after the war, and look forward to the generous confidence and liberal support of the benevolent public of the northern counties in their effort still further to provide for the needs of their mental defectives.

Correspondence.

THE MENINGOCOCCUS OF WEICHSELBAUM.

SIR,—Dr. Hort, in his letter to the BRITISH MEDICAL JOURNAL of September 7th, replies to certain criticisms I ventured to make last year on a paper he published with the above title. As one is separated both in time and in space from home it seems very unprofitable to continue the correspondence. I would, however, make certain observations on Dr. Hort's letter.

Far from being uninterested in the account of the "giant meningococcus," I took the trouble to consider it both from the view of observation and interpretation. Not having seen the structures I could not suggest mal-observation, though I did point out the insufficiency and incompleteness of the published observations. There has been either malobservation or misinterpretation.

Every microscopist is aware of the difficulty of observation in such conditions as described by Dr. Hort. Would not a little simple staining do much to enable the observer to arrive at greater certainty as to the structures of which impressions were obtained in the living organism?

Dr. Hort, I am afraid, has been very much misled as to the present knowledge of the Hemiascomycetes. Nothing would be gained by entering into a discussion of this. Suffice it to say that the statement that all the members of this group "have, so far as studied, proved to belong

definitely to" Phycomycetes or Ascomycetes is one to which not only mycologists of European reputation, but mycologists with any reputation at all would now subscribe. So much so, that many modern mycologists interested in the phylogeny of Ascomycetes have been driven to consider Florideae (Red Algae) as the probable ancestral group of these Fungi.

From the context of his letter I should imagine that Dr. Hort has been making more use of a certain elementary textbook of mycology published in 1906, and even then out of date, than was warranted either by its age or quality. I trust he will excuse my saying that his letter shows more clearly than did his original article that he will have to alter his mycological conceptions somewhat radically before he will be in a position to carry conviction. Dr. Hort admits that he is not a watchmaker. By this he probably means that when necessary he consults a watchmaker.—I am, etc.,

Central Laboratory, Salonica, Oct. 12th. J. RAMSBOTTOM.

THE FUTURE OF THE MEDICAL PROFESSION.

SIR,—Two letters in your issue of November 9th refer to an article of mine on the "Future of the medical profession."

With one of them, that by Dr. Tomkins, there will be found few members of the profession to disagree. I am in special sympathy with his views on the genesis of the "specialist." I am convinced that the principal factors in the making of a specialist are (1) opportunity, (2) practice, and that it would be to the advantage of the profession and of the community were opportunities to specialize offered to as many of the profession as cared to take advantage of them.

With Dr. Mears's letter, advocating a whole-time State service, there will, I believe, be found few to agree, except as to his contention that overwork is bad for the profession and bad for medicine. It must be remembered, however, that the overwork which undeniably now exists and will exist when the war is over is due to a shortage of medical men and women relative to the need for their work and not to the form of organization under which they give their services. Overwork could and would remain with a State medical service, even if modelled on the Army Medical Service (*absit omen*) with the alternative of leisure to the doctor at the cost of the work needed by the community which would, I am convinced, soon lead the community to give short shrift to a State service.

It will be for the professional associations and unions to see to it—

1. That the conditions of medical service shall be such as to attract sufficient numbers into the profession of the right sort of men and women.
2. That the emoluments received by the medical man and woman shall be such as to enable him or her to earn a reasonable living without overwork.

This these professional bodies can do if the individual men and women will (1) devote some personal energy to the work of the associations; (2) put their hands into their pockets to promote and extend the work of the organizations.

Perhaps we ultimately want the same thing, but it is in very different ways. I personally should not care, and I am confident that my patients would not care, for the tie between them and myself to be a record card, however well and fully kept, by which I should pick up a relation to my patient when I came on duty and hand it over to some one else when he came on duty in his turn. These are not the present day relations of doctor and patient, except in the army.

At the risk of being considered old fashioned and conservative I profess my preference for the present personal relations, and I believe them to be best for the community. —I am, etc.,

York, Nov. 9th. PETER MACDONALD, M.D.

SIR,—In the JOURNAL of November 9th, 1918, Dr. F. C. Mears writes an interesting letter on the constitution of a proposed State medical service, and suggests that every practitioner under 50 should be allowed to join the State medical service by relinquishing his private practice. Apparently men over 50 are to be left to starve on the dregs of such private practice as may remain after the establishment of a State medical service.

I hold an excellent degree, and have been in the constant practice of my profession for twenty-six years; but, owing to the expenses of a family, have not achieved independence. I am nearly 51, but physically am younger than the average man of my years. I have served for the last two and a half years in the R.A.M.C., and am at present serving overseas. There must be hundreds of men in like case with me, but apparently we are to be left out of a State service, although it might be argued that a doctor of 50 was not necessarily less efficient than a doctor of 40 or even 30 years of age.—I am, etc.,

November 18th. OVERSEAS.

THE CAPITATION FEE AND THE PANEL CONFERENCE.

SIR,—The deliberations in regard to a demand for an increased capitation fee at the recent conference of Panel Committees, as reported in the SUPPLEMENT to the BRITISH MEDICAL JOURNAL of November 2nd, give an impression of impotence which must be disquieting to those of us whose purses (and honour) are directly affected. Speaker after speaker endorsed, amplified, and supported the motion of Sunderland (requesting the Insurance Acts Committee to take immediate and active steps to secure an increase of capitation fee), and the remarks of Dr. Modlin, who proposed it; not a single dissentient voice was heard; the reader begins to thrill with pride in the noble unanimity of the representatives of his profession, who with boldness and with irrefutable logic drive home their moderate and just demand; when, hey presto! Dr. Brackenbury arises; he makes certain statements and the storm subsides. A few bolder spirits still raise their heads in protest; the Chairman, speaking as a representative, makes a further statement, and the conference votes by a substantial majority against the Sunderland motion, and against the views expressed by practically all the speakers.

And what are these statements which produced this remarkable effect? Those of Dr. Brackenbury (Chairman, and one may fairly add chief representative, of the Insurance Acts Committee) amount to two:

1. That the motion was a vote of censure on the Insurance Acts Committee.
2. That it meant, if carried, the suspension of medical benefit.

The Chairman's statement was to the effect that not one per cent. of Scottish insurance practitioners would support a strike. With the latter statement I am not concerned—Scotsmen should be able to look after themselves, and the Insurance Commissioners of England are my taskmasters. Neither am I in any way interested in the question of a vote of censure on the Insurance Acts Committee, though I note that any such reading of the motion was, by the ruling of the Chairman and with the acceptance of Dr. Brackenbury, decided to be in the Pickwickian sense only.

I cannot believe that either of these considerations was a deciding factor in producing the docile submission of nearly two-thirds of the delegates voting.

I am therefore left with the threatened suspension of medical benefit as the cause of their *volte face*, and with this I am very much concerned indeed. And yet can it be that these delegates are so blind to the condition of affairs in the panel profession that they do not know that the relative value of panel to private practice has so gone down, and the irksomeness and the annoyances of it have so gone up, that a big proportion of panel practitioners would regard such a suspension as a perfect godsend? The risk of permanent suspension of medical benefit is *nil;* the threat of a temporary suspension holds no terrors for me. My own experience and inquiries of my neighbours lead me to believe that the risk of a financial loss would be small, the burden of work would be less, and a source of constant irritation would be eliminated. With the present rate of wages a temporary suspension, long enough to bring the Commissioners to their senses, would entail no serious hardship upon insured persons.

And then no more badgering by ignorant society agents; no more skimping of drugs with one eye on the patient and one on the surcharges; no more inflations and discounts, and insolent letters from bureaucratic Commissioners. Are we indeed fallen so low that we cannot take the risk of a small loss with so great a gain in view? For we must remember that victory in the matter of this

remuneration would mean power—power to curb or remove many of the pernicious and most irritating lesser evils with which, in addition to our miserable rate of pay, we are afflicted.

I refuse to believe it. The profession can and will strike, and strike soon and hard. But it will not be with Dr. Brackenbury either as figurehead or helmsman, nor under the banner of any body which lacks the power and cohesion to force an issue when the profession stands in its present splendid strategic position.—I am, etc.,

Heworth, York, Nov. 14th. J. C. Lyth.

THE CRUSADE AGAINST TUBERCULOSIS.

Sir,—Sir Malcolm Morris's address (British Medical Journal, November 16th, p. 539) albeit interesting, is not encouraging. Its atmosphere, however, seems suitable to the style of work at present being done. An examination of 5,000 cases in dispensary work during the last four years—with tuberculosis definitely diagnosed in about one-third—leads me to conclude that heredity, infection, and environment are responsible in the order named, the last being a poor third, and its action general rather than specific.

Rest in hospital and routine treatment in sanatorium have each produced excellent results, which have quickly been nullified, in most instances, by return to family life.

Strict preventive legislation is required in several directions. If compulsory segregation of infective cases is not possible, then homes for the dying can have but a sentimental interest. During the last year, in one family, the mother died (at home) of chronic pulmonary tuberculosis, and four children have become infected. Sanatorium treatment was refused in the first two seen with early signs; and one of these, a girl aged 16 years, died of gangrene, and the boy, aged 17, is a chronic case refusing treatment. One other daughter, aged 18, developed rapid and extensive signs and accepted hospital treatment, which was very successful, but will soon be nullified, as she was compelled by the father to return home when her temperature had been normal for three weeks. An elder sister is at present doing well in sanatorium, and it is hard to think of this patient returning to such a home, which she probably will have to do.

Much is hoped and expected from a Ministry of Health, and a good start can be made in tuberculosis.—I am, etc.,

Newport (Mon.), Nov. 16th. J. Lewis-Thomas.

THE MINISTRY OF HEALTH.

Sir,—Various trade unions have made claims, which have obtained the approval and support of the Labour party, to exercise a very considerable influence upon the conditions under which each craft should work; the method in which the result of their labours should be made available; and the appointment, promotion, and discipline of their members. A long step in this direction has been taken by the formation of councils in various crafts in accordance with the Whitley Report.

I suggest that it would be advisable for the Council of the Association to refer the "scheme for a Ministry of Health," approved on January 23rd, 1918, back to a committee with instructions to strengthen their recommendations so as to secure similar advantages for medical practitioners, who have had quite enough of bureaucratic government, and are generally desirous of working under more democratic conditions.

I consider that the main point to which attention should be directed is the formation of a strong statutory medical council as part of the machinery of the Ministry. It should be so constituted as to become the supreme medical authority, with power to regulate its own sittings and agenda; communicate on health matters with any authority, including the Houses of Parliament; and be the channel of communication for, and the official superior of, the statutory medical committee to which reference is made in para. 10 of the scheme. It should have power to nominate suitable persons to the Minister for all professional appointments in his patronage; although it might be required to nominate two or even three for each appointment. In any case no appointments, promotions, or punishments of medical men by the Ministry should be possible without the approval of the council. It should nominate suitable medical men for all advisory committees for the General Medical Council (which should become one of its subcommittees), and even medical members of a reformed Upper House should such an eventuality ever arise.

The council could be constituted on the following lines:

(*a*) *Nominated Members.*—As at present for the General Medical Council; the members of which should *ex officio* become the first nominated members.

(*b*) *Elected Members.*—To represent the Local Statutory Medical Committees. It might be necessary to group small committees, or give two or more members to large ones. The elected members should constitute a substantial majority.

(*c*) *Co-opted Members.*—Power might be taken to co-opt distinguished specialists.

(*d*) *Official Members.*—The heads of the Army, Naval, Air Force, and Colonial Medical Services, and the departmental chiefs (medical) of the Ministry.

The local statutory medical committees should be given precisely similar powers in relation to their own authorities and medical employees, who should have a right to appeal to the council.

The amount of medical emoluments should be fixed by the Treasury in consultation with the Minister, advised by the medical council. The manner of distribution should be left to the local authority acting with the advice and consent of the local medical committee, subject to the approval of the medical council and the Ministry.

Speaking as a panel practitioner and member of a Panel and Local Medical Committee, I consider that a scheme on such lines would receive the approval of the vast majority of the profession, although it might appear to some to be too utopian for practical politics. As a Labour candidate, I believe it would inevitably obtain the support of the Labour party in Parliament, particularly if put forward with the authority of the British Medical Association.

Dr. Addison, in introducing his bill, proposed to limit the powers of his Advisory Council to giving the Minister advice. This is merely an example of the bureaucratic control to which objection should be taken. The Minister is in any case responsible to Parliament, but at present members have no independent means of ascertaining whether the Minister is, or is not, acting upon the advice of the experts.—I am, etc.,

John Kynaston,
Bilston, Nov. 9th. Lieut.-Colonel R.A.M.C. (ret.).

Universities and Colleges.

UNIVERSITY OF GLASGOW.

The degree of M.D. has been conferred upon W. G. Davidson (with commendation), T. Inglis and J. L. Brownlie (with high commendation).

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

At the annual meeting of the Royal Faculty of Physicians and Surgeons the following officers were elected:

President, Dr. A. Freeland Fergus; visitor, Dr. W. G. Dun; treasurer, Mr. George M'Intyre; honorary librarian, Dr. Alexander Napier; representative to General Medical Council, Mr. David N. Knox.

The council consists of: Dr. John Barlow, Dr. W. R. Jack, Dr. J. Wallace Anderson, Mr. J. Forbes Webster, Dr. Ebenezer Duncan, and Mr. R. M. Buchanan, together with the *ex officio* members—namely, the president, visitor, treasurer, honorary librarian, and representative to the General Medical Council.

CONJOINT BOARD IN ENGLAND.

The diplomas of L.R.C.P. and M.R.C.S. have been conferred upon the following candidates who have passed the final examination:

J. B. Barnett, L. H. Bartram, F. J. Bennett, W. L. Berry, M. Z. Bochenek, J. C. Brown, J. M. Brydson, H. C. H. Bull, F. T. Burkitt, C. R. Cade, D. Campbell, W. M. Casper, C. B. Clarke, C. G. Coombs, E. A. Crook, W. Davies, Mary Day, C. C. R. Downing, Clarence F. Eminson, D. W. Evans, J. H. Ewen, P. Faraci, D. C. Farquharson, G. A. Fisher, Lilian M. Fisher, J. T. T. Forbes, R. Gainsborough, G. A. Goolden, L. B. Graham, C. Grantham-Hill, D. P. Guilfoyle, A. W. Holgate, E. T. Holden, A. St. G. J. McC. Huggett, C. McC. Jones, R. D. Jones, E. G. Joseph, Florence M. Kerruish, J. Kyle, V. J. F. Lack, L. J. M. Laurent, H. S. Le Marquand, A. W. Lewis, G. S. Lewis, S. S. Lindsay, T. D. Llewelyn, G. L. Lyon-Smith, H. C. McAlister, Kathleen McC. McKeown, D. G. Macpherson, W. E. Masters, G. Millar, R. S. Millar, A. R. Neckles, W. Oats, H. Palmer, W. H. Palmer, W. A. W. Parkes, R. H. Parry, F. P. N. Parsons, E. A. Pearson, E. A. I. Phillips, M. C. Polhill, T. D. Pratt, H. L. Pridham, R. S. Ralph, F. W. Reitz, T. E. Roberts, R. H. O. B. Robinson, Joan M. Ross, C. C. Rowland, Elizabeth D. Russell, J. H. Sheldon, Hilda N. Shufflebotham, A. H. J. Smart, F. R. Snell, Frances M. Spickett, J. Spirs, F. H. Stuttaford, G. McK. Thomas, E. S. Toogood, Norah E. Trouton, R. H. Turner, M. B. M. Tweed, J. E. de V. van der Merwe, D. Wallice, H. P. Warren, T. D. Wheeler, Alice White, Ethel White, J. M. Winnett, G. Winter, R. Wolff, S. C. Woodhouse.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

A MEETING of the Executive Committee of the Fund was held at the offices of the *Lancet* on November 18th, when the position of the Fund was considered, having regard to the gradual reclamation of Belgium from the German occupation.

Sir RICKMAN GODLEE, the Chairman of the Fund, said that after inquiry he found that no definite announcement could yet be made as to when prompt communication between the Committee of the Fund and the committee sitting in Brussels could be established. It was decided to take steps to obtain through the Commission for Relief in Belgium a statement from the Comité Mixte, representing the medical and pharmaceutical professions in Belgium, as to the present position. The Committee noted with pleasure that the subscriptions to the second appeal of the Fund were still coming in, the North of England Branch of the British Medical Association, through Dr. J. Don, the honorary secretary of the Branch, having been notably generous. Relying on two things—namely, the subsidy until the end of the year of £200 a month from the American Red Cross, and the recurring generosity of the medical profession — it was decided to resume the mensuality of £800 per month.

The Committee formally expressed deep regret at the death of Mr. Meredith Townsend, who had been an active and assiduous member of their body, and through whose instrumentality a varied and valuable assortment of medical instruments had been distributed from the Apothecaries' Hall, London, to Belgian doctors, both in this country and in the Belgian army.

SUBSCRIPTIONS TO THE SECOND APPEAL.

The following subscriptions have been received up to Monday last, November 18th:

	£	s.	d.
North of England Branch B.M.A. (per Dr. J. Don, Hon. Sec.)—			
Dr. James Hudson ...	5	5	0
Dr. J. Wishart	1	1	0
Dr. J. H. R. Garson ...	1	1	0
Dr. J. McDonald ...	2	2	0
Dr. T. G. Ainsley ...	5	5	0
Dr. C. Basan	1	1	0
Dr. F. Horseman ...	1	0	0
Dr. James Don	5	5	0
Dr. A. Livingston ...	5	5	0
Dr. A. C. Burnell ...	5	5	0
Dr. Alfred Cox (monthly)	1	1	0
Dr. J. Herbert Sanders (per Sir Rickman Godlee)	1	10	10
Dr. R. H. Western ...	20	0	0
H. L.	5	0	0
Sydenham District Medical Society (per Dr. F. G. Swayne)	7	7	0

Subscriptions to the Fund should be sent to the treasurer, Dr. H. A. Des Vœux, at 14, Buckingham Gate, London, S.W.1, and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

Obituary.

SIR HERMANN WEBER, M.D., F.R.C.P., London.

Sir HERMANN WEBER died at his residence in London on November 11th in his 95th year. He retired from practice at the age of 80, but had continued to enjoy a vigorous old age, following out the principles laid down in his essay on *Prolongation of Life*, originally delivered as a lecture before the Royal College of Physicians of London. We published in our columns last February an interesting note by him on the influence of muscular exercise on longevity, in which he himself attributed a great share of his vigour at so advanced an age to his practice of keeping up the muscular system, spending daily two or three hours in the open air, walking as a rule thirty, or frequently forty or fifty miles a week, enjoying, as he characteristically added, the beauties of nature. During the last few weeks he had been rapidly losing strength, as he himself knew, but the end came suddenly and peacefully—a kind of faint as he was getting up in the morning. His mind, especially his thoughtfulness for others, remained the same to the last.

Sir Hermann Weber was born on December 30th, 1823, the son of a German father and an Italian mother. His early years were spent on the farms successively held by his father in Bavaria and Hesse-Cassel. He went to school at Fulda, and received his medical education first at Marburg and afterwards at Bonn, where he graduated M.D. in 1848. While at Bonn he became acquainted with some Englishmen who greatly influenced his future: they were Sir Peregrine Maitland, a Waterloo veteran, Sir Henry Havelock, and Sir James Simpson, who was paying a visit to Germany; at Marburg he had made the acquaintance of Carlyle, and never forgot the walks and talks he had with that philosopher. His desire to read Shakespeare in the original had already led him to study the English language, and he was therefore prepared to accept the post of house-physician at the German Hospital, Dalston, to which he afterwards became physician and consulting physician. His disposition to remain in England was confirmed by his marriage with an English lady in 1854.

He determined to practise as a physician in London, and after a period of study at Guy's Hospital he became a Member of the Royal College of Physicians in 1855. The position he had already obtained is shown by the fact that he was elected a Fellow four years later. He was the oldest surviving Fellow of the College, Dr. William Odling, F.R.S., who was elected in the same year, being six years his junior in age. Soon after his arrival in England he became a member of the Society for Clinical Observation, which included nearly all the rising physicians of that day. In later life he would refer to the interest attaching to its meetings and discussions, and the pleasure he derived from his acquaintance with its members. Much of his success, both as a physician and as a member of the profession in London, was due to his extraordinary charm of manner; no one could be in his company for even a few minutes without coming under the spell. Among his friends in the early days in London were Addison, Edmund Parkes, Wilson Fox, and Hilton Fagge. His affection and admiration for Parkes led him in 1895 to present to the College a sum of £3,000 to found a prize to be awarded every third year to the author of the best essay upon some subject connected with the etiology, prevention, pathology or treatment of tuberculosis. The prize, appropriately named the Weber-Parkes Prize, has been awarded on five occasions.

Hermann Weber was from the first specially interested in the treatment of consumption, and he was among the first to advise patients to go to Switzerland for the winter. He was in the habit of spending his holidays in the Swiss, Tyrolese, and Italian Alps; he was a member of the Alpine Club, made many early ascents of difficult mountains; in his 68th year climbed the Wetterhorn and Jungfrau, when 73 crossed the Capuchin from Pontresina to Sils, and in his 80th year crossed the Diarolezza. In 1885 he gave the Croonian Lectures before the Royal College of Physicians on the hygienic and climatic treatment of phthisis, and contributed several articles on related subjects to *Quain's Dictionary* and Allbutt and Rolleston's *System of Medicine*. He placed his knowledge of health resorts at the disposal of the profession in a volume entitled the *Mineral Waters and Health Resorts of Europe*, afterwards replaced by a volume entitled *Climatotherapy and Balneotherapy*, written in association with his son, Dr. F. Parkes Weber; a third edition, edited by the latter, was published in 1907. Hermann Weber received the honour of knighthood in 1899. He was a censor of the College of Physicians in 1879–80; he was consulting physician to the Royal National Hospital for Consumption at Ventnor, to the North London Consumption Hospital, to the German Hospital, and a member of the consulting committee of King Edward VII Sanatorium; he was also an honorary or corresponding member of a large number of learned societies.

DR. FREDERIC HAMILTON LAZENBY, of Alderley Edge, Cheshire, died there, aged 52, on October 30th, as the result of a fall down stairs in the dark on October 21st, which caused fracture of the spine. He was the third son of the late Rev. M. Lazenby of Doddington, Northumberland, and was educated at the Newcastle-on-Tyne School of Medicine, taking the Scottish triple qualification in 1890. He was an honorary surgeon to the St. John Ambulance Association, and since the beginning of the war had been almost constantly employed in examining recruits. When the recruiting medical boards were formed in January, 1916, he was appointed a member of Manchester No. 1 Board, and held that post till the work was handed over to the National Service Board in the autumn of 1917, after which he acquired a practice at Alderley Edge.

WE regret to announce the death on November 2nd of Mr. RICHARD FAVELL, surgeon to the Jessop Hospital for Women, Sheffield, who was for many years one of the leading members of the medical profession in Sheffield and district. His father, Mr. William Favell, was also one of Sheffield's best known surgeons in his day. Richard Favell studied medicine at St. Bartholomew's Hospital, and obtained the diploma of L.S.A. in 1874, and that of M.R.C.S. in 1880; in 1908 he received the Ch.M. degree of the University of Sheffield. In former days he took a deep interest in the work of the old Sheffield medical school; he was professor of obstetrics at University College, Sheffield, and subsequently Emeritus Professor. In the North of England Obstetrical and Gynaecological Society he had held the posts of president and treasurer, and in 1894 he was president of the Sheffield Medico-Chirurgical Society. His chief public work was done in the Jessop Hospital, with which he was associated as honorary medical officer for nearly forty years. He married in 1880, and his eldest son, Captain R. V. Favell, M.R.C.S., who was in practice at Sheffield before the war, is at present serving with the R.F.A. His younger son was killed in action in 1916. Mr. Richard Favell had been ill for some time past.

HUGH JOHN MCCAW, M.D., F.R.C.S.E., died on October 26th from influenzal pneumonia, at Lambeth Infirmary, London. The second son of Hugh McCaw, M.B., Invercargill, New Zealand, he was educated at the Otago Boys' High School and Edinburgh University, where he took the degrees M.B., Ch.B. in 1911. He served as temporary surgeon in the Royal Navy, and was in several engagements on the Belgian coast during the first two years of the war. On leaving the navy he became assistant medical officer to the Lambeth Infirmary. Dr. McCaw was an able and keen worker, and was respected by all with whom he came in contact, and his many friends are deeply grieved by his untimely death at the age of 32.

THE REV. DANIEL MCNEILL, M.D., of Orkney, whose death occurred on October 15th, was born in Drumlemble, Argyllshire, seventy-eight years ago. Educated at the University of Glasgow, he combined the studies of medicine and divinity with a view to entering the foreign mission field, but on a chance visit to the Orkneys he decided, at the earnest request of the people, to settle on these remote islands, and here for half a century he devoted himself to the care of body and soul. Since the outbreak of war he had been living in nominal retirement in Edinburgh, but up to the end had been doing as much medical and clerical work as his years allowed. Dr. McNeill was a man of many gifts—too versatile, indeed, to make a notable success in any one line; but his life was as useful as it was full and varied, and his humour, kindliness, and abounding sympathy endeared him to the people to whom his life was dedicated. Of his family of six sons and six daughters, four sons and three daughters are graduates or alumni of the University of Glasgow. Two sons gave their lives in the war, one is serving with the R.A.M.C., and a daughter, Dr. Mary McNeill, is with the Scottish Women's Hospital at Salonica.

DR. CHARLES A. EAMONSON RING died on October 29th of pneumonia following influenza, aged 39. He was the son of Captain Ring, R.N., of Sea View, and commenced his medical education at Guy's Hospital. It was interrupted by service under General Plumer in the South African war, where he gained the South African medal and five clasps. On the termination of hostilities he resumed his medical studies and took the Scottish triple qualification in 1905 and the F.R.C.S.Edin. in 1908. After practising at Hatherleigh, Devon, he removed to Brinklow, near Rugby, where he remained until the outbreak of the war, when he volunteered for service. He had served for two years in Macedonia and France. He subsequently resumed his practice at home. He leaves a widow and three children.

SIR ANTHONY GYSBERT VILJOEN, M.B., M.Ch.Edin., died in Cape Town at the end of October. He was born in the Caledon district of Cape Colony, and after receiving his preliminary education at the South African College, Cape Town, entered as a student at St. Bartholomew's Hospital, London, and afterwards proceeded to the University of Edinburgh. On his return to South Africa he became district surgeon first of Caledon, Cape Colony, and then of Krugersdorp in the Transvaal. He retired from practice in 1897 and took to farming in the Caledon district. During the Jameson raid, however, he acted as chief medical officer to the South African Republican Forces, and served throughout the Boer war with these forces from 1899 to 1902. He entered the Cape House of Assembly as a representative of the South-Western District of Cape Province in 1904, and was re-elected in 1908. After the union he was elected a senator in 1910. He was a member of several important commissions, including the Guano Tariff Commission, 1907, and the Industries and Commerce Commission, 1911–12. Though he had long retired from practice, he maintained an active interest in the affairs of the profession to the last, and was able to represent its views in Parliament. He served during the German South-West campaign as a major in the South African Medical Corps.

DR. E. P. LACHAPELLE, Dean of the Medical Faculty of Laval University, died in the Mayo Hospital, Rochester, Minn., on August 1st, in his 74th year. A descendant of some of the earliest French settlers in Canada, Emmanuel Persillier Lachapelle was born at Sault au Recollet, near Montreal. He was a graduate of Laval University, and soon after obtaining his degree was appointed professor of hygiene in that university. Dr. Lachapelle, through his insistence upon the importance of vaccination, greatly aided in suppressing the small-pox epidemic in Montreal in 1885. Shortly afterwards, when the Board of Health of the Province of Quebec was established, he became its first president. In 1878 he was elected a governor of the Quebec College of Physicians and Surgeons and was for many years its president. Always interested in the public welfare, Dr. Lachapelle gave great assistance to Sir Thomas Roddick in framing the Canadian Medical Act, and at the time of his death was president of the Medical Council of Canada. Dr. Lachapelle combined a delightful personality with a wide knowledge, generous vision, and much tact, and will long be remembered for his ability and kindly sympathy. He was a member of the Légion d'Honneur.

DEPUTY INSPECTOR-GENERAL JOHN WILLIAM SINCLAIR MEIKLEJOHN, R.N.(ret.), died in London on October 31st, aged 89. He was educated at Edinburgh University, where he graduated M.D. in 1851, and also took the L.R.C.S.Edin. in 1860. Soon after graduating he entered the Medical Department of the Navy as assistant surgeon, attained the rank of fleet surgeon on January 26th, 1875, and retired with a step of honorary rank on October 16th, 1884. During the Crimean war he served in the Baltic, in 1855–56, in H.M.S. *Harrier*, and received the Baltic medal.

DR. SAFE TALMA, one of the leading clinicians of Holland, whose name is well known in connexion with an operation for the relief of cirrhosis of the liver, died in June of the present year. He was born in 1847 and studied at the University of Utrecht, where he was appointed to the chair of pathological anatomy in 1876. Some years later he was called to the chair of internal medicine.

IT is said that between 20 and 25 per cent. of the boys examined for the Students' Army Training Corps in the universities and colleges of the United States failed to come up to the physical standards for soldiers, owing mainly to underdevelopment and deficiency in weight.

THE Corporation of McGill University, Montreal, has given its formal approval to a recommendation made by the medical faculty that women should be admitted to the study of medicine. Admission is to be subject to the conditions that candidates shall have completed the first and second years of the arts course at McGill, or have obtained a degree in arts from a recognized university, or are prepared to take a double course of B.A. and M.D., or B.Sc. and M.D. at McGill. Women are now admitted to the medical faculties of Toronto, Queen's, and the Western universities.

Medical News.

DR. E. MELLANBY, acting superintendent of the Brown Institution, is giving a course of five lectures at the Royal College of Surgeons of England. The first two lectures dealt with alcohol. In the third, fourth, and fifth, to be given on November 27th, December 4th, and December 11th, the etiology of rickets will be discussed. The lectures are given at 5.30 p.m.

AT a meeting in Dublin on November 8th, after the delivery of the Montgomery Lecture by Dr. Euphan Maxwell, an Irish Ophthalmological Society was established, and the following officers elected:—President: Mr. A. W. Sandford (Cork). Council: Messrs. J. B. Story, L. Werner, J. A. Craig, H. C. Mooney, F. H. Crawley. Honorary Secretary and Treasurer: Lieut.-Colonel T. H. Delany, I.M.S.(ret.), 29, Upper Fitzwilliam Street, Dublin. Mr. J. A. Craig (Belfast) was in the chair. Mr. Werner exhibited lantern slides of a case of cysticercus, already published, and Mr. Story charts of fields of vision in glaucoma. On the following day patients were shown at the Royal Victoria Eye and Ear Hospital.

A CONTRIBUTION of 500,000 dols. has been made by the American Red Cross to the Canadian Red Cross for the relief of Canadian soldiers.

A PSYCHOPATHIC institute is to be built in Winnipeg for the care and treatment of soldiers belonging to the province of Manitoba who return from the war suffering from mental disorders.

DR. DOMENICO ALBANO of Pignoia, Potenza, a district infested with mosquitos, states that protection may be obtained by anointing the exposed parts of the skin once a day, or even every two days, with vaseline. Some essence may be added to the vaseline.

BRAZIL has sent a medical mission to France. It consists of fifty doctors, with a number of students. They are to be attached to the Brazilian Hospital already established.

Bombay University Calendar, 1917–18, consists of two volumes. The first gives the acts and regulations of the university, with lists of its recognized colleges and other such matters. The second contains many hundreds of the examination papers set in the year 1916.

Letters, Notes, and Answers.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

The postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediaecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

LETTERS, NOTES, ETC.

QUININE AND INFLUENZA.

DR. HOWARD GLADSTONE (Sydenham, S.E.) writes in connexion with the statement in the Memorandum of the Royal College of Physicians (November 16th, p. 546) that no drug has been proved to have any specific influence as a preventive nor any curative effect in influenza, to recall the late Dr. Burney Yeo's recommendation of quinine for both purposes. "My own experience in this epidemic and previously," Dr. Gladstone writes, "coincides with the remarks of Dr. Burney Yeo. I find that uncomplicated cases with a high temperature become almost well in thirty-six hours if given quinine in 2 gr. doses every hour for six hours, and then every two hours. If it does not prevent the onset of pneumonia, I find that cases well treated from the onset with quinine which develop pneumonia on the fourth day have it in a mild way. In several cases the respirations were under 20 to the minute. It is in my opinion necessary to increase the dose of quinine in accordance with the severity of the type of the epidemic, and since I have given the above doses (instead of 2 grains every four hours) I have seen uncomplicated cases clear up most rapidly—fewer complications, milder course of such complications as occur, and more rapid convalescence. I feel it is opportune to bring these opinions before the profession, not with the idea that there is anything new or original in them, but with the object of pressing the claims of an old well-tried medicine, which, with some, seems to have been accorded less than its due share of credit as an ally.

COAL FOR INVALIDS.

WE have received the following notification from the Coal Control Office: It has been reported to the Coal Controller that local fuel overseers are being inundated with medical certificates authorizing additional coal rations to householders on account of illness in the family. Many of these medical certificates have been given, perhaps unwittingly, without the amount of careful consideration which is necessary in view of the present serious coal shortage. The Controller therefore draws the attention of medical men to the undesirability of granting these certificates except in cases of real hardship. Otherwise the Controller will be compelled to ignore them altogether. The only condition under which a medical certificate for an extra coal ration on account of illness should be given is where the patient is to remain in bed and where a fire in the bedroom is necessary for the recovery of the invalid; 1 cwt. to 1½ cwt. a week can be allowed for bedroom fires in these circumstances, and only for the time the patient remains in bed.

INCREASED INTRASPINAL PRESSURE IN PNEUMONIA.

MR. H. V. DREW, F.R.C.S. (Broadstairs), writes to recall that a short note by him was published on May 5th, 1917, on pneumonia, in which he suggested the possibility that intraspinal pressure often exercises a great influence in producing a fatal result, and that reduction of this by tapping might greatly reduce the mortality, as it might safely be assumed that such pressure must depress the vital powers by injuring the medullary centres. He concluded by observing that it is known that intraspinal pressure is frequently, if not always, increased in acute pneumonia, and that meningitis is found in a very large percentage of fatal cases. He now writes: "I have known cases of pneumonia mistaken for cerebro-spinal fever and tapped, nervous symptoms being very marked and greatly increased pressure being noted, but in which on examination no evidence of cerebro-spinal fever was found, yet the cases were greatly benefited by the tapping. I wish that some of the able and energetic junior physicians on the staffs of some of the large hospitals would investigate this matter, as I feel sure that there is truth in my suggestion."

BACTERIAL DIAGNOSIS OF DIPHTHERIA.

DR. ROBERT A. LYSTER, M.D., B.Sc., D.P.H. (County Medical Officer Hampshire), writes: I have read with great interest Lieut.-Colonel Warrack's article on the differential diagnosis of scarlet fever, measles, and rubella (BRITISH MEDICAL JOURNAL, November 2nd, p. 486), but there are two statements in it which one cannot allow to pass without comment, because such statements are calculated to undo the results of the persistent modern teaching of medical officers of health. I refer to the references to diphtheria. Colonel Warrack says: "If there is any suggestion that there is a membrane a swab should be taken for bacteriological examination," and in another place he states that "where there is a membrane or sloughing a throat swab should be taken." It cannot be too often impressed upon medical practitioners that if swabs are only taken from throats exhibiting membrane or sloughing a very considerable number of genuine cases of diphtheria will be missed, and these missed cases will probably constitute foci for the further spread of the disease. The routine practice should be to take a swab for all morbid conditions of the throat.

THE appointments of certifying factory surgeons at Biggar (Lanark), Pontymister (Monmouth), Witney (Oxford), are vacant.

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